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ABSTRACT

Based on the premise that the major emphasis in population education should be on the development of problem analysis and values clarification, the manual offers guidelines for program evaluation. It consists of eight chapters. Chapter I discusses the nature of educational research and in-school and out-of-school population programs. Chapter II provides a theoretical framework for the evaluation of population education programs. Chapter III discusses the evaluation of curriculum materials and the teaching-learning process and suggests measurement instruments. Chapter IV describes the evaluation of learning outcomes and also suggests sample test instruments. Chapter V presents techniques for evaluating training programs and gives examples of instruments that have been used. Chapter VI discusses issues relevant to evaluation of out-of-school programs in population education and Chapter VII is devoted to evaluative research. The final chapter considers the management of evaluation and includes a checklist for program directors in overall evaluation of their programs. A selected reading list is included. (KC)

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Population Education Programme Service

Manual on Evaluation in Population Education

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
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FOREWORD

The population of the world is estimated at 4.044 million in mid-1976, and is increasing at a rate of about 1.9 per cent each year. Asia's share of the world's population in 1976 was 2.304 million, with an annual growth rate of about 2.2 per cent. The population pressure has become eminent, as this impinges on development efforts. Many countries in the region have therefore adopted a population policy designed to curb rapid population growth. One way in which population policy is being implemented is through population education. Population education programmes have been evolved and are being implemented in response to the need to make the citizens aware of the impact of population growth on development. Some such programmes have been in operation in the last five years or so. However, one wonders if there are enough evidences on the impact of population education programmes on learners' knowledge, attitudes, values and behaviour related to population phenomena.

Many educators claim that population education is one of the educational innovations of the decade. Yet are there conclusive proofs that population education has contributed to educational renewal? To what extent have curriculum and materials development, teaching-learning process, teacher education, approaches to out-of-school educational programmes been revolutionized as a result of population education? Little is known about the answers to these questions, as only one or two countries with population education programmes have resorted to systematic evaluation of various components of the programme. The Regional Consultative Seminar on Future Directions of Population Education held in Manila on 14-21 August 1978 confirmed that one of the weakest aspects of population education is evaluation. The participants in the Manila Seminar identified lack of trained personnel in evaluation as a basic reason for this neglect. Indeed, research and evaluation tend to be a miniature component of training programmes, even for people manning population education projects.

The Unesco Regional Mobile Team on Population Education, aware that every official and practitioner in population education need to be exposed to the basics of evaluation, decided to prepare this "Manual on Evaluation in Population Education " The usual lengthy theoretical discussion of evaluation has been avoided in this Manual, as that is readily available in many books on educational evaluation. Instead, the bulk of the Manual consist of instruments which programme officers, teachers, field workers and other practitioners in population education might use in their work. The instruments included in the Manual are prototypes and should be adapted or revised depending on the cultural and social milieu of the users.

Acknowledgement is due to Prof. J.E. Jayasuriya, Dr. Pote Sapienchai and Miss Carmelita Villanueva for their help in the preparation of the original manuscript. Likewise, the Regional Mobile Team is grateful to a number of persons whose critique of the trial edition guided the Team in improving the Manual. Among the distinguished scholars who sent lengthy comments and suggestions are Dr. David Burleson, Mr. Donald Chauls, Mr. Donald Lemke, Dr. Eleanor Elequin, Dr. Jose B. Socrates, Mr. F.J.R.A. Gnanaranah, Prof. Sloan Wayland, Prof. William Griffith, Dr. A. Chinppano, Prof. Willard J. Jacobson, Ms. Olivia Nordberg, and Dean Jajaval Osathanondh.

The Regional Mobile Team hopes that users will view the Manual as a spring-board for the development of more elaborate and scientific approach to evaluation in population education in the context of their own socio-cultural settings. It is meant to be a beginning rather than the end of it all.

TABLE OF CONTENTS

Chapter One : Introduction 1
  The nature of educational evaluation . . 1
  The evaluation of population education programmes 2
    In-school programmes 2
    Out-of-school programmes 3
  The purpose of this manual 5

Chapter Two : Evaluation of population education programmes - A theoretical framework . . 7
  In-programme or formative evaluation . . 9
    The evaluation of programme objectives . . 10
    Evaluation of strategies for achieving programme objectives 12
    Evaluation of curriculum materials . . 13
    Evaluation of teaching-learning process . 13
    Evaluation of teacher training . . . 15
    Evaluation of programme effects . . . 15
    Evaluation of programme management . . 16
  Post-programme or summative evaluation . . 16

Chapter Three : Evaluating curriculum materials and teaching-learning process 17
  Evaluating curriculum materials . . . 17
    Criteria for judging curriculum materials . 17
    Check-list for evaluating curriculum materials 18
  Evaluating teaching-learning processes . . 23
    Evaluating the inquiry process . . . 23
    Evaluating the valuing process . . . 28
    Gathering data about the instructional process 32
      Hansen's interaction analysis . . . 32
      Flander's interaction analysis . . . 38
      Types of questions as categories . . 40

Chapter Four : Evaluation of learning outcomes 43
  Cognitive outcomes 43
    Sample questions/test items focusing on the inquiry process 55
    Individual and group progress reports . . 58
    Affective outcomes 61

Chapter Five : Evaluation of training in population education . 74

Pre-training evaluation 75
In-training evaluation 75
Post-training evaluation and follow-up activities 76
Sample case studies 77
Evaluation of regional training course, 1977 77
Evaluation of the training programme for the first supervisory training team (STT), Population Education Programme (PEP), Philippines 84

Chapter Six : Evaluation in the out-of-school sector . . 101

Baseline survey instruments 102
Instruments for evaluating the effectiveness of group approaches 117
Instruments to evaluate instructor/teacher competence 120
Evaluation of population education as integrated into agricultural extension work 126
Evaluation of learning outcomes in a more generalized out-of-school context . . . 127
Monitoring and feedback 128

Chapter Seven : A cursory look at evaluative research . . . 132

Tasks of evaluative research 132
Reduction of subjectivity through test . . 133
Experimental research 133

Chapter Eight : The management of evaluation 136

Responsibility of evaluation staff . . . 136
Test item banks 137
Problems and issues in evaluating population education programmes 137
Check-list for programme directors . . . 138

Appendix : Selected reading list 142

Chapter One

INTRODUCTION

The nature of educational evaluation

The objective of an educational programme is basically to assist learners to acquire knowledge, understanding, skills and attitudes conducive to individual development and the good of society. The success of an educational programme ultimately depends therefore on the extent to which learners achieve the objectives set out for the programme. It is therefore important to evaluate if in fact objectives are being achieved.

An evaluation is a judgement of value or worth. Early efforts in educational evaluation were somewhat limited in scope. They measured the achievements of learners largely with a view to making a judgement about them for selection, grading or classification purposes. It was taken for granted that high achievers were intelligent and well motivated, and that low achievers had opposite characteristics. If every student from a class or school fared badly in an examination, judgement was passed on the teacher, and in some countries the pay of the teachers depended on the examination results of pupils. The tests used focused on a narrow range of cognitive learning, and did not pay much attention to other domain of human functioning.

In recent years there has been a considerable broadening in the scope of educational evaluation. Close attention is being paid to the possibility of improving the quality of educational programmes through a careful evaluation of all the components involved in them. The assessment of learning outcomes is regarded as a means of evaluating not only the standing of learners but also the instructional programme with a view to increasing its effectiveness. This latter function has given rise to the need for frequent assessments of learning outcomes on an informal basis throughout a course, over and above more formal end-of-course efforts, and has also resulted in a more careful monitoring of pupil progress with the possibilities it offers of adjusting the teaching process more closely to individual differences among students. A second development in educational evaluation is the attention paid to relatively higher order outcomes in the cognitive domain than were characteristic of the early years of the testing movement. A third development is the attempt to assess learning outcomes in the affective and psychomotor domain. Work of a substantial nature in regard to the affective domain has, however, not been done to date, and it may well be that population education would in some measure help to focus more attention on it.

As a working basis for the purpose of this manual the following definition of evaluation, suggested by L.J. Cronbach, is accepted:

> "We may define evaluation broadly as the collection and use of information to make decisions about an educational programme." 1.

There are several decision points in an educational programme, and evaluation of one sort or another is applicable to all, or at any rate, most of them as discussed in chapter two. It may be noted here that decisions themselves may be regarded in two different ways. They may be regarded as binding for a great length of time. Or, they may be regarded as tentative and subject to a process of continuous review. The latter perspective offers possibilities of continuous improvements in educational programmes, as and when initial decisions are modified in the light of new data, evidence or insights. Moreover, it gives rise to the need for the exploration through research of alternatives that may enhance programme effectiveness. Evaluation thus becomes a continuing process, rather than a one-time effort. One of the great benefits of continuous evaluation is that it can save money and effort, especially in large-scale programmes, by providing insights for changing ineffective approaches or materials fairly early in programme implementation. Of all programme personnel, it is the teacher or instructor who maintains the most personal and continuous contact with the learner, and every encouragement should be offered to teachers and instructors to provide feedback that would contribute to programme improvement.

The evaluation of population education programmes

In-school programmes

A review of the plans of operation of the population education programmes that are currently being implemented in several countries of the Asian region shows that they have a broader scope than other educational programmes. In general, the goals set out in the population education programmes have the following components:

(a) To develop an understanding of the factors causing rapid population growth and urbanization, and to appreciate the inter-relationships between population change and quality of life;

(b) To develop responsible attitudes towards population related issues and to act in accordance with such attitudes;

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1. Lee Cronbach, "Course Improvement Through Evaluation", *Teacher College Record*, vol. 64 no. 8 (May 1963) : 672.

(c) To develop an understanding of the population policies and programmes of one's own country and to contribute towards their attainment.

The focus on the development of responsible attitudes and action is central to population education, and holds the key to the usefulness and success of the whole undertaking. The high salience in population education of outcomes in the affective domain, the value-laden and controversial nature of some aspects of the subject matter, and the expectation, explicit or implicit, that the programme will encourage well informed and responsible population related behaviour on the part of the learner at some date in the future when the time for such action comes, together call for a wider variety of evaluation techniques than are commonly used in educational programmes. It is also a feature of existing population education programmes that the most widely used mode of inclusion of population content is through integration in such subjects as social studies, general science, health science, and home economics. From the point of view of evaluation, this raises two issues. The first is that of evaluating the success of integration itself by both the teachers and the students, the second is that of ensuring that population learning is in fact evaluated in the process of evaluating pupil learning in social studies or any other subject through which relevant content is being introduced.

Out-of-school programmes

The introduction of population education into programmes of education for out-of-school youth and adults is an even more recent undertaking than its introduction into the in-school sector. Moreover, its scale of magnitude is altogether different, and the general pattern is one of a small number of programmes, conducted more or less on a pilot basis, and bearing no comparison with the nation-wide programmes found in several countries in the in-school sector. Literacy or other non-formal education programmes which do incorporate a small element of population content are, however, found in some countries.

Materials on the evaluation of population education in the out-of-school sector on a systematic basis are virtually non-existent. Apart from the relative newness and the small scale of programmes, there may be other reasons for this scarcity. One of them is the inadequacy of the evaluation that is, in fact, being done. This is attributable to several factors such as the lack of funds, want of skill on the part of programme personnel, and the real or imagined threat that evaluation has for those designing and implementing programmes. Baseline surveys, which are an important element in programme design, have tended to receive more attention than other aspects of evaluation. In connection with the general lack of attention to evaluation, it would be fair to recognize that the evaluation of population education in the out-of-school sector is even more difficult and demanding than in the in-school sector for the following reasons:

a. *Diversified nature of programmes and resource inputs.*

   Population education programmes may form part of on-going programmes in literacy, youth work, community development, agricultural extension, maternal and child health, or family planning. Whether they form a part of such programmes or are independent, they would in general use a greater diversity of personnel resources in comparison with in-school programmes. Resource persons from within the community or outside, peers specially selected for the purpose, and persons associated with various community organizations or development agencies may serve as instructors or facilitators of learning. The mass media - radio, television, newspapers and magazines - may be used on an extensive scale. Educational methods uncommon in the in-school sector such as informal communication on a personal basis from time to time, or a continuing programme of "each one teach one" may be used. The place of instruction will not necessarily be the school, but religious institutions, community centres, public halls and the homes of individuals may provide instructional venues.

b. *The heterogeneity of learners.*

   When compared to pupils in the in-school programmes, the learners in out-of-school programmes constitute a very heterogeneous group. Their diversity is manifested in such characteristics as age, maturity, literacy, level of education, socio-economic and cultural background, and marital status. This feature adds to the complexity of the evaluator's task. Should the evaluator develop a single test instrument geared towards a hypothetical commonality of background, or should several instruments applicable to the different backgrounds of the learners be drawn up? The use of paper and pencil tests raises difficulties, as persons whose level of literacy is low may not be able to respond meaningfully to them. One alternative strategy would, of course, be to read out test questions, and call for a very simple symbolic response on paper on the part of the testee. Another alternative would be to use tape recordings, skits, picture tests, games, role playing and other group evaluation instruments. Tests could also be administered individually, but to do so would be time-consuming.

c. *The short duration of programmes.*

Most out-of-school programmes are not a continuing, systematic educational experience, with the requirement that a course should be completed in order to go on to the next. In the absence of such a structure, out-of-school programmes have to be essentially of a short-term nature, in order to reduce the risk that learners might drop out by their own volition. This makes formative evaluation quite critical, especially for the insights that may be derived for organizing subsequent programmes.

The purpose of this manual

The purpose of this Manual is to offer guidelines for programme evaluation in population education, placing major emphasis on those components that are critical to this particular field of educational endeavour. On the premise that the major emphasis should be on the development of problem analysis and value clarification skills, based on a sound cognitive foundation, sample instruments and sample test items are suggested for the eventual development by project directors, in co-operation with teachers and instructors, of instruments that would be meaningful in the context of their national programmes. In general, what is envisaged is the informal use of these instruments on a micro-level within classroom or other learning situations and the sharing of the insights from them rather than their use on a massive scale. While paying special attention to such components as are critical, the need for a holistic perspective of programme evaluation has not been ignored, and it is hoped that the Manual provides such a perspective.

Organization of the manual

Chapter two provides a theoretical framework for the evaluation of population education programmes. Chapter three discusses the evaluation of curriculum materials, and teaching-learning processes, and suggests check-lists and other instruments that may be used. The evaluation of learning outcomes is discussed in chapter four. In addition to providing a selection of test items from existing tests, it also suggests sample test instruments (or, in some cases, sample types of items for test instruments). Chapter five is devoted to discussing techniques of evaluating training programmes, and gives some examples of instruments that have been used. Issues that are specially noteworthy for evaluating out-of-school programmes in population education are discussed in chapter six. Chapter seven is devoted to evaluative research. Finally, chapter eight considers the management of evaluation and includes a check-list for use by programme directors in an overall evaluation of their programmes. A selected reading list is included as an appendix.

Chapter Two

EVALUATION OF POPULATION EDUCATION PROGRAMMES - A THEORETICAL FRAMEWORK

A comprehensive perspective of the role of evaluation in an educational programme has to recognize the fact that evaluation should precede the commencement of a programme in the sense that it is important to evaluate the need for a programme before making a decision to launch it. The evaluatory process should continue throughout the period of programme implementation, making it possible to effect improvements in programme operations as they go on. Finally, the evaluatory process should not end with the termination of the programme, as the outcomes of the programme have to be evaluated both on a short-term and on a long-term basis after its conclusion.

In its initial stage, the evaluatory process encompasses the following major components:

a. *The need for a population education programme.*

The process of evaluation for assessing the need for a population education programme may be regarded as involving a comparison between a state of affairs that now exists with a desired state of affairs. A country may have certain population problems, and it may be considered necessary to sensitize the populace to it, to an extent not attempted through present curricula in educational institutions and in educational programmes for out-of-school youth and adults. Likewise, a population education programme may arise from the felt need for it, as one intervention strategy for development.

However, a population education programme may sometimes be considered necessary even for less cogent reasons; because, for example, other countries in the same geographical region have such programmes, or because funds from external sources are available for financing programmes. In all these cases, those in leadership positions would decide on the need for a programme, and the decision is in essence an evaluative one based on their judgement of what obtains at present, and what is considered desirable. Ideally, one should have an empirical study carried out to ascertain the extent to which relevant population knowledge and attitudes are possessed by the prospective target groups. Lacunae will point to the need for a programme and also help in the delineation of the objectives of the programme.

b. *The acceptability of a population education programme to the community.*

Decision makers sometimes assume that they know what is acceptable to the community, and go ahead with programmes. It would generally be preferable for them to ascertain the opinions of community leaders and others regarding the acceptability of a programme under consideration. This would usually be done by means of a questionnaire or interviews. Evidence of community acceptability not only can provide justification of a programme but also strengthen the position of project personnel in programme implementation. Two precautions may be borne in mind in regard to questionnaires and interviews. The first is to desist from undertaking this work on too massive scale, administering questionnaires or interviewing large numbers with consequent expenditure of time and money. It is a sound principle to begin with a small sample and add to it only to the extent that every such addition contributes an increment of information commensurate with the effort entailed in expansion. Where a population consists of culturally distinct groups, it is important to ascertain differences in perceptions among them, but even in this case one can begin with a small sample from each group. The second caution to be borne in mind is that as a question can mean several different things to different people, it may be meaningless unless there is an adequate elaboration of what is meant. To the uninitiated, the question, "Would you want your child to be taught population education?" lacks a definite meaning. Many regard population education as being synonymous with sex education, which itself, unless the content is elaborated in some detail, can be understood to include anything from the completely innocent to the blatantly obscene. In view of the range of possibilities in understanding what is involved in a question, evaluators using the questionnaire method should scrutinize every question they propose to use from the point of view of what it might signify to prospective respondents.

c. *The feasibility of the programme.*

As in the case of other types of decisions, decision makers may make up their minds on the basis of their best judgement, or they may have the question of financial and administrative feasibility carefully examined. The latter procedure requires the preparation of an outline plan. This is because financial requirements and administrative feasibility are related to the dimensions of a programme, and the possibility generally exists of tailoring the magnitude of the programme in accordance with the available finances and perceptions of administrative feasibility. The task of preparing an outline plan and making a preliminary evaluation of its financial and administrative implications is perhaps best entrusted to a committee of persons. Its composition should be relatively broad-based. Some in it should be those who are likely to be involved in implementing the programme, but as vested interests on their part can reduce their sensitivity to possible difficulties, it is necessary to include in the committee a few who would definitely not be involved in implementation. The committee may also include some people from the community, with rotating advisers from outside. In any event, the programme planning exercise of the committee, though essentially of a tentative nature, should be carefully scrutinized and evaluated by other knowledgeable persons.

If an evaluation of the preliminary plan confirms financial and administrative feasibility and a firm decision is made to go ahead with the programme, a detailed plan for implementation has to be made. Evaluative judgements would be required at a number of decision points, and they are likely to be made in the light of the best accumulated experience of the planners. In turn, they would be subject to modification and acceptance by the decision-making authorities. While empirical research can be undertaken even at this stage to provide information for decision-making, in general this is unlikely to be the case. It is not proposed to elaborate here the evaluative procedures and judgements involved in the planning process, as they would, in general, be not different from the procedures and judgements that are used for the relevant components in in-programme or formative evaluation as set out below.

In-programme or formative evaluation

In-programme or formative evaluation of an educational programme focuses on the design and operational components of the programme with a view to gathering data for evaluating them and effecting improvements.

Its basic purposes are two-fold namely:

i) to identify the strengths and weaknesses of the programme in its design and operation during the process of implementation; and

ii) to suggest ways and means of improving the programme by maximizing its strengths, and reducing its weaknesses through the use of appropriate alternatives.

Among the components of an educational programme, the following need attention from the point of view of formative evaluation:

1. The objectives of the programme
2. Strategies for achieving programme objectives
3. Curriculum materials
4. Teaching-learning processes
    (a) Teacher-learner interaction
    (b) Learner-materials interaction
    (c) Learner-learner interaction
5. Personnel training
6. Programme effects
    (a) The changes in the learners
    (b) The impact on other educational programmes, and the school system
7. Programme management

A word of explanation is necessary regarding the inclusion of item number six in this list, as it is usually associated with the idea of summative evaluation. Programme effects are continuous throughout the operation of a programme in the sense that every programme activity has certain effects, and to the extent that the assessment of these effects helps in improving the programme as it goes along, the assessment is basically formative. An assessment of programme effects carried out on or after the termination of a programme is summative in so far as the programme is concerned.

The evaluation of programme objectives

In the programme planning stage, objectives will have been stated in general or global terms. They need to be kept under constant review with regard to their

(a) congruence with national developmental goals that take into account religious and socio-cultural values;

(b) congruence with general educational goals;

(c) comprehensiveness in regard to cognitive processes, affective reactions, and the development of skills; and

(d) feasibility.

The following procedures are useful for the evaluation of general objectives:

(a) Comparison with statements of national goals and general educational goals for points of congruence/conflict;

(b) Reference to consultant teams;

(c) Checking against taxonomies of objectives;

(d) Ascertainment, through questionnaire or interview, of the views of a sample of community leaders, parents, educational administrators, teachers, other adults, out-of-school youth, and students.

For instructional purposes, general objectives will be broken down into more specific objectives to be realized grade-wise, and if an infusion or integration approach is used, there should be a further breakdown into the objectives to be realized subject-wise and/or unit-wise. In the case of out-of-school programmes, the specific objectives may be formulated according to interest-groups, age-groups or other relevant criteria. Ideally, the formulation of specific objectives should be made on an assessment of prospective learners, using pre-tests and interviews with small and representative samples of learners. Such assessments should focus in the first instance on determining their general socio-cultural background, and the knowledge, attitudes and skills they have. The guidelines so obtained for programme objectives and content should lead to a further assessment that determines the extent to which the learners are ready, cognitively and affectively, to embark on the programme envisaged for them. In general, this ideal state of affairs is unlikely to obtain and decisions are more likely to be made on the basis of subjective judgements rather than on empirical studies.

If, however, an empirical study is to be undertaken, the instruments and item types found in chapters four and five would be suggestive for such work.

The specific objectives, on whatever basis they are arrived at, should, as far as possible, be stated in terms of observable behavioural changes on the part of the learners. They should be regarded as intermediate points on the way to the achievement of general objectives. This means that the attainment of specific objectives should cumulatively lead to the realization of general objectives. Evaluatory assessments in this regard are necessary, and perhaps they are best carried out through an analysis that spells out the way in which the specific objectives encompass what is needed for the achievement of the general objectives. This would suffice until such time as empirical evidence comes from evaluations of programme operations.

Evaluation of strategies for achieving programme objectives

On the basis of preliminary value judgements, based on prior considerations, the insights of knowledgeable persons, experiences of programmes in other countries, and what is administratively feasible, initial judgements will have been made in regard to the grade levels in which population education will be taught in the in-school sector, and the approaches to be used, for example, whether population content would be introduced as a separate subject, infused into the content of other subjects, or integrated into existing subjects in the form of units or subunits. Evaluation in this connection has two dimensions. One is that of assessing how well the mode of inclusion functions, without any effort to compare it with other possible modes. The second is to evaluate the chosen mode *vis-a-vis* other possible modes. The first of these becomes especially important when the infusion or integration mode is used. Such questions as the following arise: Does the population content that is introduced fit in naturally with the rest of the subject matter or does it appear to have been forced in artificially? Given a grade level, is the population content that is introduced through various subjects related in a meaningful manner? As between grade levels, is there a sound sequencing of content? Is there much repetition of content? How broad and deep is the coverage when all grade levels are considered together? All these questions deserve the serious attention of evaluators. The second issue mentioned above, namely that of evaluating the chosen mode *vis-a-vis* other possible modes is in a sense an optional one in that a country might decide not to have this investigated. If, however, it is decided to investigate it, an informal method would be to ascertain the opinions of teachers who are involved in the programme. A formal method of evaluation would be through a research design in which various alternatives may be tested. Reference should be made to chapter seven in regard to the designing of such research.

In the case of the out-of-school sector, the strategies for introducing population education will depend very much on the framework within which the activity is to be undertaken. They will, for example, differ according to whether the course in population education would be an activity by itself, or whether it would be part of a newly proposed or on-going programme of rural transformation and development, agricultural extension, functional literacy, labour training and education, food and nutrition campaign, social welfare drives, urban renewal, manpower and skills development.

Evaluation of curriculum materials

The quality of curriculum materials has to be evaluated in regard to such aspects as their

i) relevance and likely contribution to the achievement of programme objectives;

ii) suitability for the age, ability and experience of the learners;

iii) relevance to the needs of learners;

iv) sequencing, and their fit into the rest of the curriculum.

This evaluation may be based on

i) the opinions of consultants, and community leaders;

ii) teacher's opinions; the opinions of field instructors (out-of-school programmes);

iii) learner's opinions;

iv) assessment of learner progress.

Two check-lists suggested for the purpose of evaluating curriculum materials will be found in chapters three and six, respectively. One is with special reference to the in-school sector, and the other to the out-of-school sector.

Evaluation of teaching-learning processes

a. *Teacher-learner interaction.*

It has been pointed out in chapter one that the emphasis in population education should be on the development of problem analysis and value clarification skills, based on a sound foundation of cognitive content. In general, teachers are quite familiar with the expository process as a means of presenting cognitive content. What needs special attention in population education programmes is the encouragement of the use of processes that elicit inquiry and value clarification. Two check-lists that provide criteria to determine the extent to which these processes are used are given in chapter three. They may be used by a teacher for self-evaluation purposes; or they may be used by an observer, and in this sense they could be used to evaluate the practice teaching of teachers undergoing pre-service or in-service training in population education. An instrument providing a basis for analysing the instructional process through a categorization of the verbal behaviour of a teacher during a lesson is also suggested in chapters three and six (Instruments II A, III A and III B).

b. *Learner-materials interaction.*

Materials of various sorts provide source of learning. For example, they may be reference books, text books, instructional materials prepared by the teachers or materials which the learners themselves develop or compile on the basis of field surveys and interviews, reading of reference books and magazines.

Observation of learners while they are engaged in their learning tasks is a possible method of evaluation. Another would be the administration of a questionnaire to learners for ascertaining their reactions.

c. *Learner-learner interaction.*

Group activities in which, *inter alia,* learners interact among themselves are an important means of learning. A group may, of course, range in size from a dyad (two persons) or a triad (three persons) to any number of persons who meaningfully interact with one another. Group activities have to be evaluated with respect to the objectives they are intended to achieve. A possible method of evaluation would be to observe groups at work using a check-list to record the results of the observation. Some instruments for this purpose are suggested in chapters five and six.

Evaluation of teacher training

Teachers (including instructors or facilitators in the case of out-of-school programmes) are a critical input into any educational programme, and their importance cannot be over-emphasized in the case of population education, in view of the special characteristics briefly mentioned in chapter one. Teachers are not conversant with the new field, and have to be assisted to acquire relevant cognitive learning, to examine critically attitudes and values, not only their own but also those of the social cultural milieu in which they work, and to learn teaching skills appropriate for introducing population content. The in-service and pre-service training of teachers is therefore a matter of the highest priority in population education. Reference is requested to the Training Manual in Population Education (Unesco, Bangkok, 1978) for a full discussion of personnel training, including a section on evaluation. Chapter five of the present Manual has an additional material on the evaluation of training.

Evaluation of programme effects

a. *The changes in the learners.*

The ultimate justification for an educational programme lies in the success with which programme objectives are attained in so far as the learners are concerned. The evaluation of learning outcomes is therefore of critical importance. The evaluation of learning outcomes serves, however, not only to throw light on the learners but on the programme objectives themselves, and equally important on the teaching-learning process. A discussion of the evaluation of changes in learners with special reference to the cognitive and affective domains will be found in chapter four.

b. *The impact on other educational programmes, the school system.*

In evaluating any programme, most of all a programme that is new, it is necessary to consider its impact on other programmes and activities in the school. This need becomes even more important when special funding on a relatively liberal scale has been available from external sources for the new programme. Care should be taken to ensure that a balanced perspective is not lost, and that there is no disturbance of other necessary activities. A case in point is where a large number of teachers in a school are

> required to keep away from school during school days to follow an in-service course in the new programme. One method of carrying out such an evaluation is by means of interviews with administrators and teachers. The sample to be interviewed should include some who are involved in the programme and others who are not so involved.

It is also necessary to stress that when a programme has been funded from an external source, programme evaluation should include an assessment of the extent to which capacity is being developed within the institution/agency/country concerned to continue the programme after the external funding has ceased.

Evaluation of programme management

Programme management has to be efficient if programme objectives are to be successfully achieved. The evaluation of various aspects of programme management may be carried out by a study of documents setting out programme details, on-the-spot assessments of operational arrangements through visits to agencies and institutions involved in the programme, and interviews with administrators, supervisors, school principals, teachers, and out-of-school programme personnel.

Post-programme or summative evaluation

By post-programme or summative evaluation is meant the evaluation of the outcomes of a programme, both on a short-term and on a long-term basis, after its conclusion. In so far as learning outcomes are concerned, much of the content of chapters four and six deals with the summative evaluation, and some of the test items and instruments suggested in them are appropriate for summative evaluation. As population education has a long-term time perspective implicit in its goals, it would be ideal if samples of learners could be followed up and the same test instruments as those given on the termination of the course repeated after some months or years. The difficulty of keeping track of learners over an extended period of time is not to be underestimated, but it would be well worth the effort.

Chapter Three

EVALUATING CURRICULUM MATERIALS AND TEACHING LEARNING PROCESSES

Evaluating curriculum materials

It is a common practice in curriculum projects to prepare curriculum materials at the central level and issue them to schools. This is especially so in connection with new programmes. The justification for this practice is that in general a greater mobilization of personnel and other resources is possible at the central level than at the local level. It is important, however, to ensure that the materials so produced are subjected to continuous review. The use of consultants and community leaders has been referred to in chapter two. The most useful feedback is, however, that which can come from classroom teachers and instructors at the grass-roots level. When the materials are eventually used by them for their day-to-day teaching, it should be their responsibility to assess their good points and weak points, and provide feedback to the authorities who wrote them. In many cases, soliciting learners appraisal of curriculum materials are indispensable, as the learners are probably the best judge of whether the materials suit them and are relevant to their needs.

The importance of sequencing and integration within existing curricula in the in-school sector or existing educational programmes in the out-of-school sector has been emphasized in chapter two. The evaluation of such sequencing and integration is very much a situation specific undertaking, and does not lend itself to the use of a check-list of a general nature. The instrument suggested below is of the latter type, and its major use is, when the population content has a high degree of visibility in the form of a distinct lesson or unit.

Criteria for judging curriculum materials. Among the components of curriculum materials that might be evaluated are the overview, objectives, content, suggested methodologies, evaluation and other features like the quality of printing, illustrations, and binding. Not all these components might be available in some materials, and need not therefore be evaluated.

In the instrument, each of the above-mentioned components raises questions about the features that should characterize components of instructional materials. Scaled responses are called for, namely very much--3 to not at all--0.

24

It is assumed that a weighted average[1] of 2 indicates that the curriculum materials are quite good. However, the overall weighted average should not be the sole criterion of effectiveness. It might be more useful to look into the items where the scores are zero (not at all).

How to use the instrument. The instrument might be used by the programme officer, an outside evaluator or the writer of the instructional materials himself. It is not uncommon to have adverse criticism of curriculum materials, which may not be justified on two grounds - first, that no set of criteria is used as a basis for the evaluation and/or the outside evaluator may be using a totally different set of criteria.

It might be useful even for those just starting to develop instructional materials to be guided by this instrument or an adaptation of this instrument depending on what the person or project considers necessary and important.

Check-list for evaluating curriculum materials

	Very much (3)	Much (2)	Little (1)	Not at all (0)
I. Overview				
To what extent does the overview				
1. explain why the population education unit should be studied?				
2. describe what population topics will be covered?				
3. provide ideas on how the population curriculum material or lesson will be taught?				

---

[1] Frequency multiplied by weighted value (for example, very much -3, much -2, little -1) divided by the total number of items.

	Very much (3)	Much (2)	Little (1)	Not at all (0)
4. show how the curriculum materials or lesson is linked to development goals?				

II. Objectives

To what extent

	Very much (3)	Much (2)	Little (1)	Not at all (0)
5. are the general objectives linked to national development goals?				
6. do the general objectives cover the cognitive domain?				
7. do the general objectives cover the affective domain?				
8. do the specific objectives cover the cognitive domain?				
9. do the specific objectives cover the affective domain?				
10. are statements of objectives clear, specific and in behavioural terms?				
11. are the objectives challenging in the sense that they require pupils to go beyond simple factual knowledge (and receiving of attitudes/very simple skills)?				
12. are the objectives attainable?				

	Very much (3)	Much (2)	Little (1)	Not at all (0)
13. do the objectives build upon pupils pre-programme levels of understandings?	____	____	____	____

III. Content

To what extent

	Very much (3)	Much (2)	Little (1)	Not at all (0)
14. are the contents geared towards attaining the objectives?	____	____	____	____
15. are the population data up-to-date?	____	____	____	____
16. are the population data accurate?	____	____	____	____
17. does the content present the pros and cons of the issues?	____	____	____	____
18. is the content organized around basic ideas and concepts?	____	____	____	____
19. are the population data adequate to arrive at conclusions?	____	____	____	____
20. is the content suitable to the learners?				
a) needs?	____	____	____	____
b) interest?	____	____	____	____
c) ability?	____	____	____	____
d) experience?	____	____	____	____
21. does the content use relevant experiences (values, customs, traditions, and practices)?	____	____	____	____

IV. Methodology

To what extent

	Very much (3)	Much (2)	Little (1)	Not at all (0)
22. do the objectives *de facto*, imply the use of lecture methodology?	____	____	____	____
23. do the objectives cover learning process skills?	____	____	____	____
24. are the suggested materials for the opener appropriate to the population concept?	____	____	____	____
25. are the suggested materials for the opener a good spring-board for inquiry and/or value clarification?	____	____	____	____
26. do the materials lend themselves to varied activities?	____	____	____	____
27. are the suggested activities				
a) interesting?	____	____	____	____
b) challenging?	____	____	____	____
c) effective?	____	____	____	____
28. are the activities arranged logically and psychologically?	____	____	____	____
29. do the activities lead to the attainment of the objectives?	____	____	____	____
30. is the time allotment reasonable?	____	____	____	____

		Very much (3)	Much (2)	Little (1)	Not at all (0)
31.	does the method presuppose long periods of preparation for the teacher?	____	____	____	____
32.	are the methodologies structured to maximize pupil's participation in learning?	____	____	____	____
33.	do the methodologies encourage pupil talking and doing?	____	____	____	____
34.	is humour/enjoyment encouraged?	____	____	____	____
35.	would you be bored if you were a pupil in this class?	____	____	____	____

V. Evaluation

To what extent

36.	are the evaluative items congruent with the objectives?	____	____	____	____
37.	do the evaluation instruments provide for a variety of test items?	____	____	____	____
38.	is there a reasonable balance of items in the cognitive and affective domains?	____	____	____	____

VI. Other features

To what extent

39.	are the materials readable?	____	____	____	____

	Very much (3)	Much (2)	Little (1)	Not at all (0)
40. is the format attractive?				
41. are the materials printed in a suitable type?				
42. are the illustrations				
a) clear?				
b) suitable?				
c) accurate?				
d) effective?				
43. do the illustrations depict real-life situations?				
44. are the colours used in the illustrations appropriate?				
45. is the paper used of good quality?				
46. is the binding durable?				

Evaluating teaching-learning processes

Evaluating the inquiry process

Problem: An examination of many population education materials in the Asian region reveals that the inquiry approach is often suggested as a teaching-learning methodology. In view of the fact that the teachers and trainers who teach them were trained by the expository method, it is doubtful if they are really doing justice to the inquiry approach. No systematic evaluation of the proper use of the inquiry process has, however, been undertaken. There are hardly any instruments developed to gather data about the use of the inquiry process. Hence, this instrument.

Rationale: The inquiry approach emphasizes the fact that the *how* is as important, if not more important than, the *what* in learning. This is premised on the assumption that the human mind is not merely a receptacle which is to be filled with factual information, but a tool that is sharpened in the process of education. One way in which the mind is developed is through the inquiry process. The major objective in using this process is for pupils to inquire, and not a scheme whereby the teacher mechanically goes through a series of problem solving steps, but pupils never really have to do any thinking.

Criteria for judging the proper use of the inquiry process: The inquiry process has certain unique features that can be used as a basis for judging whether a teacher is using it properly or not. Some of the more important features are described below:

i) Problem. The population lesson is problem-oriented. The learner must feel the need to solve a problem or puzzle.

ii) Hypothesis. The learner must have some possible explanations why a problem exists. He uses an educated guess as his/her guide in the search for an answer or solution to the problem.

iii) Gathering data. Instead of the teacher giving the learner the data and the solution to the problem, the learner searches for them.

iv) Testing the tentative answer/solution. The learner assembles, arranges and analyses his/her data to prove or disprove his/her hypothesis.

v) Conclusion. The learner arrives at his/her own conclusions on the basis of his findings rather than what the teacher tells him/her.

Certain values and attitudes are expected of teachers such as the following:

1. Scepticism
2. Curiosity
3. Respect for the use of reason
4. Respect for evidence as a test for accuracy
5. Objectivity
6. Willingness to suspend judgement
7. Tolerance for ambiguity [2]

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[2] Barry K. Beyer, *Inquiry in the Social Studies Classroom.* (Colombus, Ohio: Charles E. Merrill Publishing Co., 1971).

It is assumed that in the 4-point scale envisioned in the use of the instrument (very much -3 to not at all -0) that a total weighted average of about 2 indicates that the inquiry process is being utilized properly. However, instead of merely looking at the total weighted average, the user of the instrument might want to look at the individual items and determine in which area he/she is weak in. Appropriate remedial measures could then be taken accordingly.

Sources of evidence and techniques of data gathering: There are three possible sources of evidence on the proper use of the inquiry approach. The instrument may be used by the learners to evaluate the process, an outside observer may use the check-list or the teacher/trainer himself might use it. Whenever possible all three should be resorted to ensure reliability.

A very important prerequisite for the use of the instrument is that there is a general agreement on the basic components of the inquiry process and the attitude expected of inquiry-oriented teaching by both the evaluator and the one being evaluated.

Inquiry process: a check-list

A. Process

	Very much (3)	Much (2)	Little (1)	Not at all (0)
To what extent				
1. is the teacher a generator of inquiry in the population lesson?	____	____	____	____
2. does the teacher present the population topic/concept in a problem context?	____	____	____	____
3. do the teacher and students jointly explore aspects of the population problem?	____	____	____	____
4. do the hypotheses made or positions taken up by students show relationships to population concepts?	____	____	____	____

	Very much (3)	Much (2)	Little (1)	Not at all (0)
5. do students gather population data/information to assess the validity of different positions/ hypotheses?	____	____	____	____
6. are students encouraged to analyse the population data/information gathered in relation to the hypothesis?	____	____	____	____
7. are conclusions/generalizations arrived at through group decision?	____	____	____	____
8. are conclusions/generalizations applied to other similar population situations?	____	____	____	____

B. Attitudes and values

To what extent

	Very much (3)	Much (2)	Little (1)	Not at all (0)
9. does the teacher adopt a questioning attitude (scepticism) about population related phenomena?	____	____	____	____
10. does the teacher manifest curiosity about population related phenomena?	____	____	____	____
11. does the teacher respect the use of reason in resolving population issues?	____	____	____	____
12. does the teacher respect qualitative and quantitative evidence relative to population related questions?	____	____	____	____

	Very much (3)	Much (2)	Little (1)	Not at all (0)
13. does the teacher possess an attitude of objectivity, where he/she is aware of his/her own bias, and avoid allowing his/her prejudice to distort population data?	____	____	____	____
14. does the teacher encourage pupil's opinions which differ from his/her own?	____	____	____	____
15. is the teacher willing to suspend judgement on population issues?	____	____	____	____
16. does the teacher manifest attitude of tolerance for ambiguity in population related dilemmas?	____	____	____	____

C. Inquiry skills: a check-list

To what extent is the teacher developing in learners the following skills:

1. stating problem clearly?	____	____	____	____
2. formulating hypothesis?	____	____	____	____
3. selecting and using appropriate data gathering procedures?	____	____	____	____
4. observing population phenomena accurately and precisely?	____	____	____	____
5. recording population data?	____	____	____	____
6. processing and interpreting population data?	____	____	____	____

	Very much (3)	Much (2)	Little (1)	Not at all (0)
7. finding meaningful relationships between population concepts?	____	____	____	____
8. generalizing from given data?	____	____	____	____
9. drawing implications from the generalizations?	____	____	____	____
10. writing the report?	____	____	____	____

Other forms of inquiry process. The lock-step approach implied in the preceding section is of course not the only form of inquiry process. High-level questioning or questioning that goes beyond the memory level, is one form of inquiry. Teachers might, therefore, be trained to develop questions and test items that measure the following abilities:

1. formulate problems in researchable terms;
2. state and identify researchable hypothesis;
3. list, group and classify data;
4. identify and collect appropriate data;
5. determine the accuracy, reliability of data;
6. see relationships between concepts and state them in empirical sentences;
7. interpretation of graphs.

Reference is requested to pages 55-57 of chapter four for some sample questions/test items with special reference to the processes listed above.

Evaluating the valuing process

Whoever gets involved in population education cannot escape being concerned with ethical issues. However, ethics is deeply rooted into the values of society. There are many crucial ethical issues in population education because many issues involve values that conflict with one another.

Rationale: The focus of our interest is population *education* and not population *indoctrination*. Indoctrination has been found to be counter-productive, especially in population related matters. Indoctrination assumes that learners are not able to distinguish between right and wrong, hence, not ready to make a choice based on the clarification of their own values.

Valuing, on the other hand, is premised on the assumption that values are internalized through a process of value clarification which involves, among other things, a free choice from among alternatives, and a critical examination of the consequences of each choice. With these pre-conditions, the learner prizes his/her choices, and acts in accordance with the values that he/she has internalized.

Criteria for judging proper use of value-clarification: There are many variations in value-clarification techniques. Most of them, however, contain the steps cited by Louis Raths. Value-clarification is premised on the basic values and attitudes of the teacher, as indicated in the proposed instrument. The basic steps are as follows:

Chooses:	1)	freely
	2)	from alternatives
	3)	after thoughtful consideration of the consequences of each alternative
Prizes:	4)	cherishes, is happy with the choice
	5)	willing to affirm the choice publicly
Acts:	6)	does something with his/her choice
	7)	repeatedly in some pattern of life. [3]

Merrill Harmin and associates think that value-clarification is effective when a teacher:

1) is accepting and non-judgemental
2) encourages diversity; realizes that there are no absolute right or wrong answers for another's value questions
3) respects the individual's choice to participate or not
4) respects the individual's response
5) encourages each person to answer honestly
6) listens and raises clarifying questions with students

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3. Louis Raths *et al. Values and Teaching.* (Colombus, Ohio: Merrill, 1966).

7) avoids questions which may threaten or limit thinking

8) raises questions of both personal and social concern[4].

Using the four-point scale (very much -3 to not at all -0), it is assumed that a total weighted average of about 2 indicates that the valuing process is being utilized properly. However, again instead of merely looking at the total weighted average, the user of the instrument may look at the result of the appraisal of each item and determine in which component he/she is weak. Then, appropriate remedial measures could be taken accordingly.

Source of evidence and data-gathering techniques: The instrument can be used by the learners to evaluate the process, by an outside evaluator or by the teacher or trainer himself. Ideally all three should be used to ensure reliability.

It is important that both the evaluator and the person being evaluated agree on the basic steps and attitudes upon which this instrument is based.

Value process: a check-list

	Very much (3)	Much (2)	Little (1)	Not at all (0)
To what extent				
1. does the teacher recognize that population education is value-laden?	____	____	____	____
2. does the teacher tell the students what values or beliefs they should hold regarding population issues?	____	____	____	____
3. does the teacher use population education materials that are controversial?	____	____	____	____

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[4] Merrill Harmin, Howard Kirschenbaum and Sidney Simon, *Clarifying Values Through Subject Matter*. (Minneapolis: Winston Press, 1973).

	Very much (3)	Much (2)	Little (1)	Not at all (0)
4. does the teacher encourage the learners to take a position about controversial population topics?	____	____	____	____
5. does the teacher encourage learners to weigh or analyse the consequences of each alternative position?	____	____	____	____
6. does the teacher provide enough data for each of the alternatives upon which to base the choice of alternatives?	____	____	____	____
7. does the teacher allow the learners a free choice of the alternatives?	____	____	____	____
8. does the teacher use materials and tools (for example, value sheet, value continuum sheet) to enable learners to clarify their own values?	____	____	____	____
9. does the teacher use value-clarification techniques (for example, role-playing, brainstorming, unfinished story, value-continuum approach, simulation) to facilitate the value clarification process?	____	____	____	____
10. do learners manifest that they are doing something to pursue population related decisions they have made?	____	____	____	____

Note: Examples include: voluntarily talking to their parents about population issues, asking for a book or bringing in information related to population.

	Very much (3)	Much (2)	Little (1)	Not at all (0)
11. is the teacher accepting and non-judgemental of students' opinion on population-related issues?				
12. does the teacher encourage diversity of views regarding population issues?				
13. does the teacher respect the student's right to participate or not in the discussion of controversial issues in population education?				
14. does the teacher avoid questions that will limit discussions on controversial issues in population education?				
15. is the teacher a model of a good listener for students?				

Gathering data about the instructional process

The analysis of student-teacher interaction in the classroom is one way of gathering data about the instructional process. Two systematic methods for the observation of classroom interaction are discussed and illustrated in this section.

A. Hansen and Hearn's interaction analysis.

This is based on the categories developed by Hansen and Hearn.[5] Categories are classes into which content units are grouped for purposes of analysis. The categories developed by Hansen and Hearn are as follows:

1. Seeks information	Specific information is sought with no demand for any action other than presentation.

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[5] John H. Hansen and Arthur Hearn, *The Middle School Program.* (Chicago: Rand McNally and Co., 1970).

2. Gives information	Specific facts are given - mostly one-word answers, dates, unexplained data, and lists.
3. Seeks labels and groups	Naming, classifying, categorizing and grouping of information is sought.
4. Gives labels and groups	Specific facts are classified, categorized or grouped.
5. Seeks interrelationships	Requests for responses which explain or organize data already known.
6. Gives interrelationships	Explanations or organization of information already presented.
7. Seeks inferences and generalizations	Asks for comparison, contrasts, and consequences, which demand inclusion of information not already stated.
8. Gives inferences and generalizations	Provides (specifically or through implications) comparisons, contrasts, consequences, principles, and generalizations.
9. Seeks predictions and hypothesis	Requests to apply known information to situations in order to predict events, and outcomes.
10. Gives predictions and hypothesis	Use of information and deduction to predict unknown facts, events, and actions.
11. Procedural remarks	Those statements which are made in class which are intended as agreement, disapproval, management, reiteration, expressions of feeling, and encouragement.
12. Focus	Those statements which are made to keep students working towards the proposed objectives.
13. Nonverbal	All classroom activity which is non-verbal or do not contribute to the lesson (confusion or out-of-focus remarks).

Below is an example of how Hansen and Hearn's categories might be applied using a population education lesson. T stands for the teacher, S for the student.

		Code[6]	Analysis
T	Tell the following story:		
	Mr. and Mrs. Rubio went home to the province for the holiday. They took all their children with them. As the children were playing all over the place, Mrs. Rubio let out a sigh and told her mother, "I wish I could stop having more babies. We just can't afford them anymore."	12 12	Focusing statements
	"What do you mean you can't afford them?" her mother asked, "Didn't I raise all of you with only your father's salary? With both of you working, how could you complain?"	12 12	
	"But, Mother! times have changed since your child-bearing days."		
	"Don't you worry. We will manage and God will provide."	12	
	Mrs. Rubio smiled. Somehow, what her mother had said cheered her up a lot.[7]		
T -	What was the belief of Mrs. Rubio's mother?	1	Seeks information
S -	That God will provide.	2	Gives information
T -	What do you think of this belief?	5	Seeks interrelationships
S -	Even if God would provide, we should strive hard to provide for ourselves for "God helps those who only help themselves."	6	Gives interrelationships
T	From whom, do you think, did Mrs. Rubio's mother get this belief?	1	Seeks information

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6. Code frequency is based on about 20 seconds interval.

7. Philippines, Department of Education and Culture, Population Education Programme. *Teacher's Guide in Population Education for Social Studies Grades I-VI.* (Manila, 1975), pp. 89-90.

		Code	Analysis
S	From her mother.	2	Gives information
T	By telling the same belief to her daughter, would you say the belief will be weakened or strengthened? Why?	7 7	Seeks inferences and generalization
S_1	The belief will be strengthened as daughters tend to believe what mothers say.	8	Gives inferences and generalization
S_2	The daughter will rationalize her situation following the line of reasoning by the mother.	8	
S_3	She would have found some relief by agreeing with her mother.	8	
S_4	The fact that Mrs. Rubio has many children is a sign that she is following the footstep of her mother, is it not?	8 9	
T	Are we agreed that this is the way beliefs are strengthened?	12	Focusing statement
S	Yes.	11	Procedural remark
T	Who are the people who are likely to strengthen beliefs conducive to large family size?	3	Seeks labels and groups
S_1	Those with less education tend to strengthen those beliefs	4	Gives labels and groups
S_2	People from the remote rural areas	4	
S_3	Those of some religions	4	
T	If the majority of the people are less educated, mostly living in remote rural areas, and have a religion that does not approve of family planning, what do you expect to happen?	9 9	Seeks prediction and hypothesis

		Code	Analysis
S_1	If to be less educated is to sustain beliefs conducive to big family size then our country will have rapid population growth.	10	Gives prediction and hypothesis
S_2	Most of our people live in remote rural areas, so we can expect a rapid population growth.	10	
S_3	Most of our people are Roman Catholics, so we can predict a rapid population growth.	10	
T	What do you think needs to be done in order that beliefs and conditions conducive to big family size could be remedied?	5	Seeks interrelationships
S_1	We should educate our people, especially those in the rural areas so that they could be trained to examine their beliefs before accepting them.	6 6	Gives interrelationship
S_2	Even among Catholics, those with higher educational attainments do not sustain beliefs that are conducive to big family size.	6 6	
T	What conclusions can we make out by our discussion?	7	Seeks inferences and generalizations
S_1	Some beliefs are conducive to big family size.	8	Gives inference and generalization
S_2	These beliefs conducive to big family size are strengthened by elders.	8	
S_3	The level of education and where people live and religion affect people's beliefs related to family size.	8	
S_4	Education is a key factor to prevent people from sustaining belief system conducive to big family size.	8	

The coding of the analysis may be summarized as follows:

First 5 mins.		Second 5 mins.		Third 5 mins.		Last 5 mins.	
T	S	T	S	T	S	T	S
12		1			11		10
12			2	3		5	
12		7			4	5	
12		7			4		6
12			8		4		6
1			8	9			6
	2		8	9			6
			8		10	7	
5			8		10		8
	6	12			10		8
	6						8
							8

The date may also be presented in a condensed form as follows:

Teacher talk - 40.5%

Category	1	2	3	4	5	6	7	8	9	10	11	12	13
Tallies	2		1		3		3		2			6	
% of total	7.1				14.3				4.8			14.3	

Student talk - 59.5%

Category	1	2	3	4	5	6	7	8	9	10	11	12	13
Tallies		2		3		6		9		4	1		
% of total	11.9				35.7				9.5		2.4		

Among the inferences that can be made from the data are the following:

1. The teacher talked 40.5 per cent of the time while the students talked 59.5 per cent of the time, the teacher's talk consisted mostly of seeking, while that of the pupils was mostly responding.

2. 19.0 per cent of the time was devoted to concept formation process (teacher and student categories one through four combined).

3. 50.0 per cent of the time was spent in making inferences and generalizations - teachers 14.3 per cent and students, 35.7 per cent.

4. 14.3 per cent of the time was spent in predicting or hypothesizing.

5. 14.3 per cent of the time was spent by the teacher in establishing and re-establishing focus.

B. Flanders' interaction analysis.

Flanders developed an observation instrument to measure classroom verbal behaviour. It is called Flanders' Interaction Analysis Categories (FIAC) or sometimes called Flanders' System Interaction Analysis (FSIA). The FIAC is the most widely used instrument for measuring classroom verbal behaviour. It consists of ten categories as follows:

Flanders' Interaction Analysis Categories (FIAC)

Response	1. Accepts feeling. Accepts and clarifies attitude or the feeling tone of a pupil in a non-threatening manner. Feelings may be positive or negative. Predicting and recalling feelings are included. 2. Praises or encourages. Praises or encourages pupil action or behaviour. Jokes that realease tension, but not at the expense of another individual; nodding head or saying "Um hm?" or "go on" are included. 3. Accepts or uses ideas of pupils. Clarifying, building, or developing ideas suggested by a pupil. Teacher extensions

Teacher talk		of pupil ideas are included, but as the teacher brings more of his own ideas into play, shift to category five.
		4. Asks questions. Asking a question about content or procedure, based on teacher's ideas, with the intent that a pupil will answer.
	Initiation	5. Lecturing. Giving facts or opinions about content or procedures; expressing his own ideas, giving his own explanation, or citing an authority other than a pupil. 6. Giving directions. Directions, commands, or orders to which a pupil is expected to comply. 7. Criticizing or justifying authority. Statements intended to change pupil's behaviour from nonacceptable to acceptable pattern; bawling someone out; stating why the teacher is doing what he is doing; extreme self-reference.
Pupil talk	Response	8. Pupil-talk-response. Talk by pupils in response to teacher. Teacher initiates the contact or solicits pupil's statement or structures the situation. Freedom to express own ideas is limited.
	Initiation	9. Pupil-talk initiation. Talk by pupils which they initiate. Expressing own ideas; initiating a new topic; freedom to develop opinions and a line of thought, like asking thoughtful questions; going beyond the existing structure.
Silence		10. Silence or confusion. Pauses, short periods of silence and periods of confusion in which communication cannot be understood by the observer.

Three-second intervals for encoding behaviour were recommended by Flanders. Observers or raters observe classroom verbal behaviour at three-second intervals and the predominant behaviour during the interval is encoded or tallied in the appropriate categories. Ratio of teacher talk, two types of indirect teacher influence to direct teacher influence ratio (i/d and I/D) are widely used. The ratio of teacher talk is obtained by dividing the sum of frequencies in categories 1, 2, 3, 4, 5, 6 and 7 by the total frequencies. The i/d ratio is obtained by dividing the sum of frequencies in categories 1, 2 and 3 by the sum of frequencies in categories 6 and 7. The I/D ratio is obtained by dividing the sum of frequencies in categories 1, 2, 3 and 4 by the sum of frequencies in categories 5, 6 and 7.

The manner in which this instrument is used is very similar to the procedure adapted for the Hearn's category. Hence, no example is deemed necessary.

Types of questions as categories

The third category that could be used for analysing the nature of classroom behaviour is on the bases of the kinds of questions teachers ask and the corresponding responses of the learners.

1. Managerial questions: A teacher question used by the teacher to keep the classroom operating, to move activities and pupils towards the desired goals.

   Examples of this type of question are: Will you turn to page , please? Who needs more time to finish the work? Does everyone understand?

2. Rhetorical questions: A teacher question used by the teacher to reinforce a point or for emphasis. Teachers asking rhetorical questions do not really anticipate receiving an oral - student response.

   Example: The size of the population of a country is obtained every few years by a national census, right?

3. Closed questions: A teacher question for which there is a limited number of acceptable responses or "right answers".

   Example: What is the population of Thailand?

   Open-ended questions: A teacher question for which there is a wide range of acceptable responses. It draws on the students' past experiences but it also causes students to give opinions and the reasons for these opinions, to infer or to identify implications, to formulate hypothesis, or to make judgements based on their own values and standards.

Example: What would happen if there are too many people in a city?

If you suspected that you were the carrier of some genetic abnormality, would you not have children, and why?

Norris Sanders developed a taxonomy of teacher questions based on Bloom's taxonomy of educational objectives. They are:

1. Memory - the student recalls or recognizes information.
2. Translation - the student changes information into a different symbolic system or language.
3. Interpretation - the student discovers relationships among facts, generalizations, definitions, values, and skills.
4. Application - the student solves a life-like problem that requires the identification of the issue and the selection and use of appropriate generalizations and skills.
5. Analysis - the student solves a problem in the light of conscious knowledge of the parts and forms of thinking.
6. Synthesis - the student solves a problem that requires original, creative thinking.
7. Evaluation - the student makes a judgement of good or bad, right or wrong, according to standards he sets.[8]

Conclusion

There is a general tendency to expect so much change in student's behaviour, as an outcome of teaching, using instructional materials prepared by curriculum experts. And very frequently when no obvious learning and a change of behaviour occurs, we often blame the students, saying that they are dull, lazy or perverse. The defect, however, may be not in the learner at all but in the curriculum materials or the learning materials employed. It is hoped that the check-list for evaluating curriculum materials and the different tools for evaluating the learning process suggested in this chapter will help to improve these materials and their use.

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[8] Norris Sanders, *Classroom Questions: What Kinds*. (New York: Harper and Row, 1966).

As is implied in the preceding discussion, it is believed that fairness in setting values, encouraging students' inquiries and discussion, and using 'open-ended' or non-final questions are to be preferred to their opposites.

Chapter Four

EVALUATION OF LEARNING OUTCOMES

Learning outcomes are generally classified into three categories or domains, namely the cognitive, affective and the psychomotor. In relation to population education, the two domains that deserve the most attention are the cognitive and the affective. It is important to emphasize the fact that these two domains are not completely exclusive and unrelated. To the extent that perception, which provides the basis for cognition, is selective and influenced by affective factors, the affective domain acts as one of the determinants of cognitive learning. In turn, affective behaviour depends partly on one's cognitions, and in this sense the cognitive domain acts as one of the determining factors in affective learning. One of the great uses of the classificatory process in regard to the domains of human functioning is to ensure that they are all paid adequate attention.

It cannot be too strongly emphasized that the evaluation of learning outcomes in the field of population education is not so much for the purpose of making a judgement about the learner but for monitoring and adjusting the teaching-learning processes, and even the objectives of a programme, with a view to making improvements in them.

Cognitive outcomes

It is undeniable that a certain amount of attention has been paid in some national population education programmes to the evaluation of cognitive learning. Teaching guides that have been prepared and issued to schools do contain some test items. More intensive work is, however, required as feedback from the responses of pupils to test items which could make a considerable contribution to programme improvement. Reference is requested in this connection to chapter seven which suggests the development in the course of time of a bank of test items, in the expectation that from the administration of samples drawn from the bank valuable insights for programme improvement would follow.

In the cognitive domain, the range of abilities which students are expected to develop may be classified in a number of ways. One such classification is based on Bloom's taxonomy which is as follows:

1. The ability to *recall* information, facts, terminologies, processes, ideas and theories.

2. The ability to *interpret* and *comprehend* information when it appears in tabulated, graphical, symbolic, diagrammatic or other forms.

3. The ability to *analyse, synthesize* and *draw conclusions* from information, facts and situations. [1]

It should be borne in mind though that Bloom's levels of thinking processes do not necessarily have a direct relationship with age or grade. A seven-year-old can also analyse, synthesize and draw conclusions using simpler facts. Test items on the higher level thinking processes should therefore be attempted even for the lower grades.

However, it is relatively more difficult to construct test items measuring the higher level processes of interpretation, analysis, synthesis and so on. Unless special attention is paid to them, test construction tends to over-emphasize recall or purely factual items.

In addition to identifying the level or quality of the cognitive learning to be assessed, the educator who is constructing a test, should analyse the content of the learning programme. He must identify the objectives, concepts, ideas in the unit or course. A unit on health and population will obviously require a set of test items different from one on village development and population change.

The following is a possible content outline for a unit on population education for students in secondary schools:

1. Population change and structure:
    a) age pyramids
    b) dependency ratio
    c) demographic transition
2. Causes of population change: social/economic/ physical determinants
3. Interrelationship of population change and quality of life.

A procedure for assembling questions to constitute a test starts with a table of specification such as the one given below:

---

[1] Benjamin Bloom, (Editor) *Taxonomy of Educational Objectives. Book I Cognitive Domain.* (New York: David Mckay Co., 1956).

Table: Test questions by content area and type of student knowledge

Behaviour	1. Recall	2. Interpretation	3. Analysis synthesis, & evaluation	Total
Content 1. Population change/ structure	1			1
Age pyramids		3	1	4
2. Dependency ratio	2		2	4
Demographic transition			5	5
3. Causes of population change			10	10
4. Interrelationship of population change and quality of life		4	2	6
	3	7	20	30

When such a table of specifications has been completed, the test developer can generate test items from the table. As the above table of specification shows, a decision has been made to emphasize higher level cognitive skills. Items in the table of specification must attempt to evaluate the set objectives. However, the fallibility of linking test results to the achievement of objectives need to be borne in mind. Given any content outline, an infinite number of questions concerning that content are possible. Thus, no single question or set of questions, answered correctly, proves that the objectives have been achieved.

For each item in this table a sample test question, meant for secondary school students, is given in the following pages.

Objective: To assess the ability to recall a demographic fact. (topic: population change--cognitive level: recall)

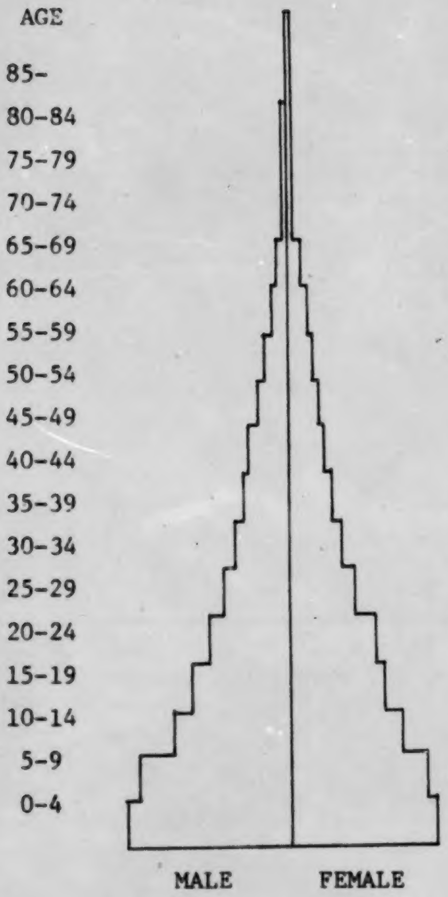
1. The population of our country is currently growing by about:

   a) 500 thousand people a year

b) one million people a year
c) two million people a year
d) five million people a year
e) none of the above

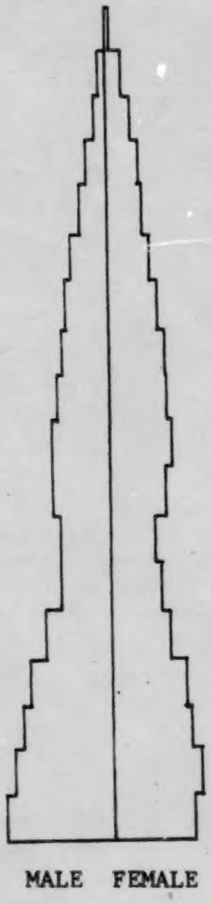
Objective: To assess the ability to translate, interpret, analyse and arrive at conclusions based on graphical evidence. (topic: population change and structure; three questions at the interpretation level and one at the analysis level)

a)



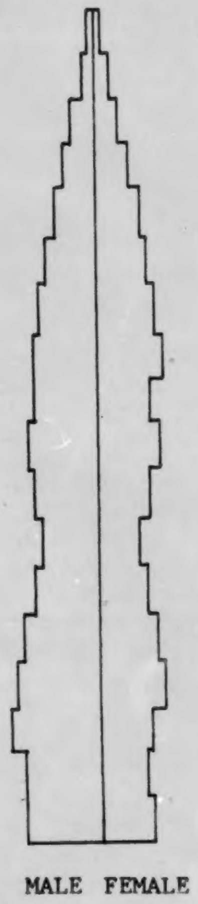
Manila - 1969

b)



New York - 1969

c)



Oslo - 1969

Examine the population pyramids given on the preceding page and answer questions 2 to 5.

2. What does the broad base of the Manila population age structure mean?
    - a) The population is stable
    - b) There are many young people in the population
    - c) There are more people who die in their adulthood
    - d) Young people are the backbone of the country

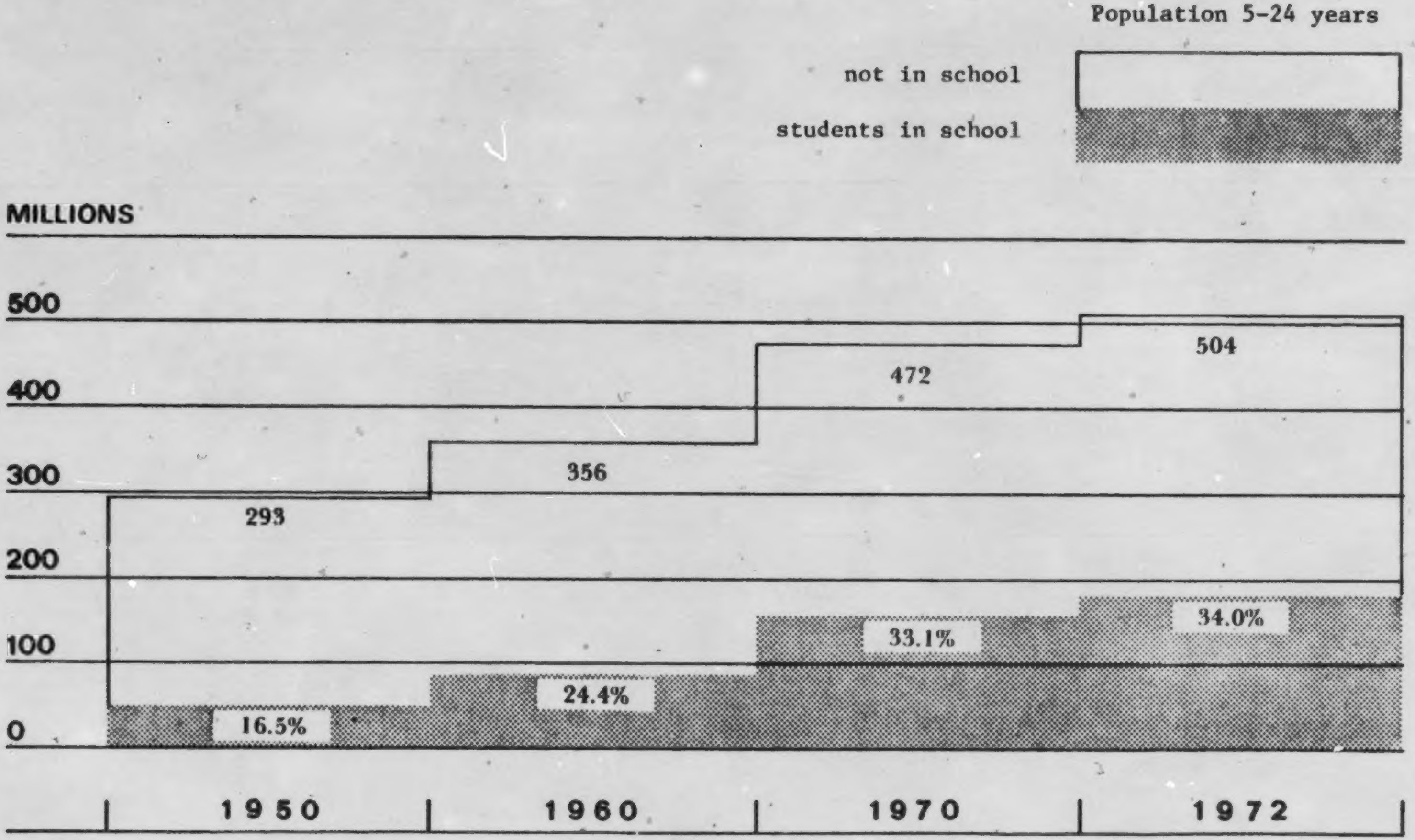
3. Which city has the lowest percentage of people between the ages of 0 and 14?
    - a) Manila
    - b) New York
    - c) Oslo
    - d) None of the above

4. Which age group in Manila has the highest number of people?
    - a) 0-4
    - b) 5-9
    - c) 10-14
    - d) 15-19

5. It can be said that
    - a) Manila has a higher burden of dependency than the other two cities
    - b) Oslo has a lesser burden of dependency than the other two cities
    - c) New York has the largest population of the three cities
    - d) New York is likely to need more extensive programmes for the care of the aged than Manila

(Adapted from Yong-Duck Paik, *A comparative study on three approaches in the teaching of population education*, Ph.D. Thesis, University of the Philippines, 1977)

POPULATION 5-24 YEARS AND CHILDREN IN SCHOOL IN ASIA, 1950-1972



(Unesco Regional Office for Education in Asia, *Progress of education in the Asian region. Second statistical supplement.* Bangkok, 1975, p. 17)

Objective: To assess the ability to interpret and analyse information about the impact of population growth on the size of the school population. (topic: population consequences -- cognitive level: interpretation)

Study the bar-graph on the preceding page and answer questions 6 to 9.

6. What does the graph show?

   a) The population less than 4 years of age in Asia

   b) The population aged 5 to 24 and the number of school children in Asia

   c) The population and the number of children not enrolled in school

   d) The number of teachers and the population of students aged 5 to 24

7. Pay particular attention to the length of the bar. What does the bar show in relation to the size of population?

   a) The population does not change

   b) The population is continuously increasing

   c) The population is decreasing

   d) None of the above

8. Pay particular attention to the length of the bar. What does the bar show in relation to the population of school children?

   a) The size of population has not changed

   b) The size of the population of school going age is continuously increasing

   c) The size of the school population is decreasing

   d) None of the above

9. What is the effect of rapid population growth on the number of school children?

   a) The larger the population, the larger the number of school children

   b) The larger the population, the smaller the number of school children

c) The increase in population does not affect the number of school children

d) None of the above

(Adapted from the *Teacher's manual for the self-learning unit in population education.* Grade VI. PEP, DEC, Philippines, 1976)

Objective: To assess the ability to recall how to calculate a demographic measure and to analyse that measure. (topic: dependency -- cognitive level: 2 questions on recall/calculation and 2 questions on analysis)

Look at this table and answer the questions below:

	PERCENTAGE IN EACH GROUP		
	Under 15	15 to 64	65 and over
Japan	24	69	7
Republic of Korea	40	56	4
Malaysia	42	54	4
Sri Lanka	41	55	4
United Kingdom	24	63	13

10. Which country has the highest dependency ratio? ____________

11. Which country has the lowest dependency ratio? ____________

12. Suggest at least one reason why Japan has the dependency ratio that it has.

____

____

____

13. Does the dependency ratio accurately show the percentage of people in Malaysia who are not employed? ______________ Give two reasons for your answer.

____

____

____

____

(Adapted from: *Teacher's guide to population education in geography, Forms 4 and 5.* Curriculum Development Centre, Population Education Project, Kuala Lumpur, Malaysia, 1975)

Objective: To assess the ability to draw demographic implications given brief descriptions of social/economic/physical events. (topic: population causes - behavioural level: analysis)

Each of the following could cause a change in the birth rate or death rate. Write A, B, C, D before each statement where:

A = Statement may lead to women having more births and an increase in the birth rate

B = Statement may lead to women having fewer births and a decrease in the birth rate

C = Statement may lead to more deaths and an increase in the death rate

D = Statement may lead to fewer deaths and a decrease in the death rate

Statements:

14. ______ A deadly disease strikes.

15. ______ Women marry later --- after the age of 22 years, according to the law.

16. ______ Parents have a strong desire for sons.

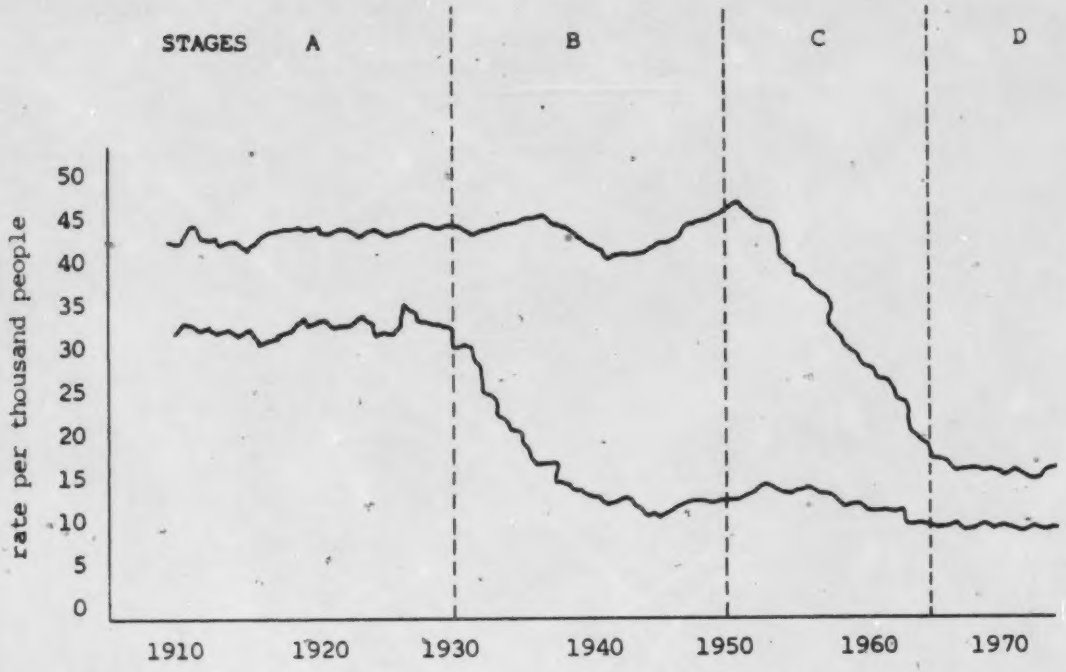
17. ______ People believe that pregnant women should eat as little as possible.

18. ______ Many young women go to work in factories in cities.

19. ______ People believe that it is dangerous to wash babies in soap and water.

20. ______ The drinking and bathing water suddenly becomes very polluted.

Objective: To assess the ability to analyse a graph and match (synthesize) description to the graphical information, (topic: demographic transition -- cognitive level: analysis, synthesis)



This graph shows the stages of the demographic transition for a certain country. Write the letters *A, B, C, D* to show the stage to which each statement applies. Sometimes you may need to write more than one letter.

21. ______ Almost 1 out of every 4 babies dies.

22. ______ Women start marrying at a later age.

23. ______ Very few children attend school.

24. ______ Many farmers start using small mechanical tillers/tractors.

25. ______ Medical care is improving rapidly, there are clinics in each village.

Objective: To measure the ability to analyse a statement and draw a conclusion about its demographic implications. (topic: dependency ratio population consequences --- cognitive level: analysis and synthesis)

26. Which of the following countries probably has the largest proportion of consumers relative to producers?

    a) India

    b) Italy

    c) Japan

    d) Malaysia

(Adapted from Jerry Brown. *A plan for an instructional unit on population dynamics*, Bloomington, Indiana, 1971)

Objective: To assess the ability to evaluate and make judgement on problems. (topic: causes of population change -- cognitive level: analysis)

Instruction

Read the following statement and answer the questions below.

A committee has been working on a problem of what to do about a large factory in their town. This factory is polluting the river, and as a result many of the fish in the river have died. Many fishermen in the town now have no work. Some of the people in the town think the factory should be made to move out of the town. Others feel that the factory is more important than the fish. There are many people in town who work there. There are fewer, but still a large number of fishermen, too.

27. What do you think the committee should do? Choose the best solution.

    a) The factory should be made to move to another town

    b) The factory should be made to stay and operate as it is

    c) The factory should be allowed to stay if it installs a purifying plant

28. Choose the statement below which best explains the solution you choose.

    a) The plant should be made to move to another town. If it moves, the workers will have to travel and perhaps move to the new town.

    b) The factory should be allowed to stay. The job is more important than the fish. Fishermen can fish in other rivers.

    c) They should install a purifying plant. No matter where the factory moves, it will have to do this, as no one will allow the factory to pollute the water.

    d) The town should help to pay for the purification plant as many people in the town fish in the water.

    e) The factory should be moved out as it is not good to have factories dirtying the town. Besides, the more factories, the more people and it might become necessary to build a new school

(Adapted from James Banks. *Teaching Strategies for the Social Studies*, 1974)

Objective: To measure the ability to analyse the causes of population decrease. (topic: population consequence -- cognitive level: analysis)

29. Population decrease in a community most likely results from

    a) decline in the number of business houses

    b) better schools in the community

    c) better job elsewhere

    d) decline in business and better jobs elsewhere

    e) none of these

Objective: To analyse information and form a conclusion about it. (topic: population consequences -- cognitive level: analysis)

The following is the result of a study of families living in a town in Rizal.

Family size	Average expenses
3-5	500.00 pesos
6-8	1,300.00 pesos
9-11	1,600.00 pesos
12-14	1,800.00 pesos

30. Which statement can you derive from the study?

   a) Big families require more money than small families

   b) Small families and big families do not differ in their need for money

   c) The budgets of big families and small families are approximately equal

   d) Small families require more money to go on living

(Adapted from Yong-Duck Paik, *op. cit.*)

Sample questions/test items focusing on the inquiry process

Reference is requested to pages 23-28 of chapter three on the inquiry process.

1. *Objective:* To measure the ability to formulate researchable problems.

   Below are a number of questions. They vary in the degree to which they can provide direction to a researcher. Check the question which will best help focus research activities.

   a) What are the social consequences of rapid population increase?

   b) How has rapid population increase affected Thailand?

   c) What factors were responsible for the lower rate of population increase in Thailand that took place in the large cities during 1970-1977?

2. *Objective:* To measure the ability to formulate a testable hypothesis.

   Below are three hypotheses. They vary in the degree to which they are empirical and testable. Check the hypothesis that is the most empirical and clearly focused.

   a) Unemployment, political alienation and poor housing conditions led to the student demonstrations that took place in Bangkok during 10-12 May 1977.

b) Student demonstrations took place in Bangkok during 10-12 May 1977 because the Government announced a bad policy.

c) Student demonstrations took place in Bangkok during 10-12 May 1977 because students were not treated in the right way.

3. *Objective:* To measure the ability to conceptualize or describe a class of behaviour.

Which of the following is not related to population growth?

a) Migration

b) Mortality

c) Fertility

d) Mid-year population

4. *Objective:* To measure the ability to collect appropriate data.

A researcher is studying this problem, "Is there any relationship between level of parental education and family size?" Which of the following data will best help him?

a) Define population, select representative sample and collect data on the number of years of parent's education and the number of their children.

b) Collect data on sex and type of education of one community.

c) Collect data on education and composition of population of one community.

d) Administer a standardized test to the parents in one community.

5. *Objective:* To measure the ability to analyse and interpret data.

There are seven children in the Lee family. The Kim family has four. Both families have the same income, and other things may be considered equal. Which family is likely to be more healthy?

a) Kim family.

b) Lee family

c) Both families.

d) It is not possible to say.

6. *Objective:* To measure the ability to derive or make a generalization. (Given a set of data, the student will be able to write a testable generalization which states the relationship that can be derived from it.)

Study the data in the following table and write a one-sentence generalization that can be derived from the data. Describe how you can test the generalization that you have derived.

Suicide Rates in Selected Countries, 1965
(per 100,000 population)*

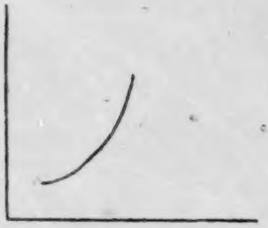
Denmark	38.7	Venezuela	12.7
France	30.5	Colombia	12.2
Japan	29.5	Mexico	3.4
United States	22.4	Philippines	2.0
New Zealand	18.2	Nicaragua	1.8
Hong Kong	16.2		

* Based on the data from the Statistical Abstract of the United States. Washington, D.C. 1969.

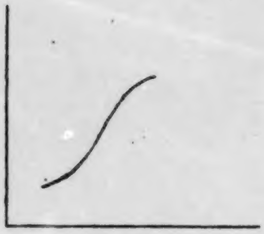
7. *Objective:* To measure the ability to interpret graphs.

The characteristic form of a line graph that represents the growth of a population in a favourable environment is best shown by:

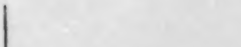
A



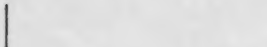
C



B



D



Individual and group progress reports

A simple instrument for recording data about the achievement of learning outcomes in the cognitive domain is suggested below. This instrument is based on a criterion - referenced type of assessment, where a student's achievement is judged in terms of a standard specified in the objective, rather than with reference to the performance of the other learners. The latter is known as norm-referenced. The main concern of criterion-referenced evaluation is to determine whether the objective has been realized or not, and not how a learner stands in relation to the other learners.

The check-lists given in the next page can be used both as a data-gathering and data-recording instrument regarding individual and group progress. The first instrument is designed to reflect individual progress, while the second one summarizes the achievement of the objectives of all the learners.

The graph on page 61 gives a picture of how the whole group has performed in respect of each of the educational objectives.

Direction for use: If a topic has been learned then a check is made, but if not then a cross is indicated in the appropriate column.

Example:

At the end of this unit on demographic measures (*name of learner*) is able to compute:		
		Comments
A. Mortality		
1. Crude death rate	✓	
2. Age-specific death rate	✗	
3. Infant-mortality rate	✓	
B. Fertility		
4. Crude birth rate	✓	
5. General fertility rate	✓	
6. Age specific fertility rate	✗	
C. Migration		
7. Net migration	✓	
D. Population Growth Rate		
8. Rate of natural increase	✓	
9. Growth rate	✓	
10. Doubling time	✗	

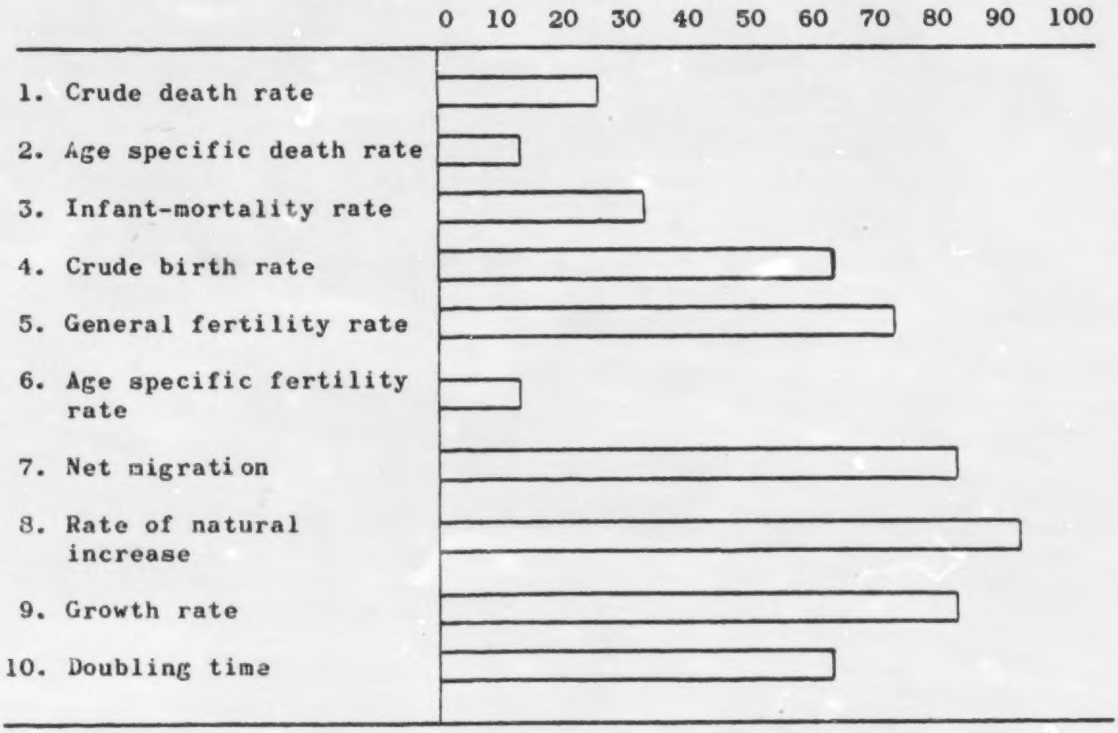
The individual progress reports may be summarized as shown in the graph on the next page.

At the end of this unit on demographic measures the students are able to compute the following:

	Ramesh	John	Pote	Ansar	Leonardo	Bill	Mary	Carmelita	Kathy	Maleewan
A. Mortality										
1. Crude death rate										
2. Age-specific death rate										
3. Infant-mortality rate										
B. Fertility										
4. Crude birth rate										
5. General fertility rate										
6. Age specific fertility rate										
C. Migration										
7. Net migration										
D. Population Growth rate										
8. Rate of natural increase										
9. Growth rate										
10. Doubling time										

Note: Items each student can compute is marked with a check (✓).

The class progress may now be presented in a graph, showing percentage of learners who have attained a particular objective. This is illustrated as follows:



Graph showing percentage of objectives accomplished.

The first check-list shows the individual student's progress, and where each one needs further learning assistance. The second check-list as well as the graph shows which particular content objective needs to be explained further.

Affective outcomes

The taxonomy developed by D.R. Krathwohl, B.S. Bloom and B.B. Masia for the affective domain offers the following classification:

1. Receiving (awareness; willingness to receive; controlled or selected attention)

2. Responding (acquiescence in responding, willingness to respond, satisfaction in response)

3. Valuing (acceptance of a value, preference for a value, commitment)

4. Organization (conceptualization of a value, organization of a value system)

5. Characterization by value or value complex (generalized set, characterization)[2].

It will be noted that although five categories are used, the heart of the process is concerned with values. The categories numbered 1 and 2 are implicity concerned, though at a relatively low level of involvement, with values, whereas the categories numbered 3, 4 and 5 are explicity concerned, with values at a quite high and complex level. The extent to which this taxonomy, or any other system of classification in the affective domain, has been used is rather limited as educational evaluation has tended to pay only marginal attention to the affective domain in comparison with that paid to the cognitive domain.

Values are reflected in feelings, opinions and beliefs, and intentions to act. On this assumption, a number of sample items representative of possible instrument types are suggested below. The items have not been refined or subjected to any kind of qualitative analysis by inviting the scrutiny of knowledgeable persons, nor have they been put through any quantitative analysis. Some of the instruments may be indicative of what may perhaps be identified as a single dimension, others may have a more global perspective. The basic idea behind them is to suggest avenues for exploring outcomes in the affective domain with special reference to population education. Even in a fully developed form, through the assembling of items and the use of qualitative and quantitative analysis, a task hopefully to be undertaken by project staff in country programmes, it is not intended that the instruments should be used on a massive scale for norming purposes. The most important use envisaged for them is in micro-studies, the level of the individual classroom and school, to improve programme components such as the curriculum and teaching-learning methods by administering appropriately selected sample items or complete instruments from time to time. Some sets of items or complete instruments (even Instrument No. VII) may be administered twice, at the beginning of a unit or course, and at the end of the unit or course.

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[2] D.R. Krathwohl *et al. Taxonomy of Educational Objectives. Book II: Affective Domain.* (London: Longman Group, 1964), p. 95.

Instrument I is of the type used by R.R. Likert for the measurement of attitudes, with the difference that in the sample items given, the wording strongly emphasizes the element of personal belief and opinion. Among the statements there are a few (for instance, 4, 5 and 6) which in the personalized form in which they are given, are possible indications of intentions to act.

Instrument I

(Rubric and sample items)

Read carefully the statements numbered 1 to 8. They are statements of views and beliefs that some people hold. Below each statement, you will find five responses, namely:

SA = Strongly agree
A = Agree
U = Undecided
D = Disagree
SD = Strongly disagree

In respect of each statement, check the appropriate column which represents the view or opinion you hold.

	SA (5)	A (4)	U (3)	D (2)	SD (1)
1. I believe that the economic growth of my country will be hindered if population grows too fast.	____	____	____	____	____
2. I am sure that living standards in my country will improve with the greater production that will come with rapid population growth.	____	____	____	____	____
3. In my view, family size is not one of the major causes of undernourishment among the poorer socioeconomic group in my country.	____	____	____	____	____
4. I believe that two children are not enough for a family, as many children would be a help to parents.	____	____	____	____	____

	SA (5)	A (4)	U (3)	D (2)	SD (1)
5. I believe that the health of a mother is not adversely affected by having a large number of children with spacing between them.	____	____	____	____	____
6. I am sure that the only way of ensuring that someone would look after me in my old age is to have a large number of children.	____	____	____	____	____
7. I am convinced that if people continue to have large families the problem of unemployment would become worse.	____	____	____	____	____
8. I think that rapid industrialization is the only answer to the problems of the developing countries.	____	____	____	____	____

Note: It is possible to simplify the responses by giving two alternatives or three alternatives instead of five.

Example: two alternatives *agree, disagree*
three alternatives *agree, undecided, disagree*

* * * * * * * * * * *

Instrument II is another instrument intended to explore opinions, and in a few cases, intentions to act in a somewhat less personalized way than the first. Its format is also less complicated than the Likert type. The method of scoring suggested is that endorsement of a statement showing sensitivity to population and quality of life issues would receive a score of 1, while no endorsement would receive 0. This would be reversed for statements in the opposite direction.

Instrument II

(Rubric and sample items)

The trends listed below are seen in some countries. Which of them would you encourage or discourage in your own country. Mark ✓ on the dotted line for those which you would encourage and X for those which you would discourage.

1. Throwing litter on the streets .....
2. Using dynamite to catch fish .....
3. Getting married before the age of 20 .....
4. Postponing marriage until a person is at least 25 years old .....
5. Providing health services to reduce infant mortality .....
6. Married couples having 3 or more children .....
7. Married couples having 2 or less children .....
8. Withdrawal of girls from attendance at school due to early marriage .....
9. Some grown-up males and females deciding to remain unmarried .....
10. Importing machinery that would replace labour .....
11. Converting all forests to agricultural and pasture lands .....
12. Paying more attention to the health of sons than the health of daughters .....

* * * * * * * * * * *

Instrument III is not intended to provide a score for each individual. The responses will be meaningful for curriculum development, and teaching-learning processes. For example, if in set I, very few endorse the statements of A, B and C, it would be evident that urbanization has not been adequately dealt with in the curriculum. If opinion is divided as to B's response in set III, it will provide an opportunity for the classroom discussion of values pertaining to the sex of the child. Endorsement of high death rates (statements of A or C in set III) will open up an opportunity for discussing a moral value. Apart from such uses as those mentioned, the instrument could also be administered at two different points of time, and the changes in responses noted for what they might signify.

Instrument III

(Rubric and sample items)

Below you will find certain sets of statements, marked I, II, III, and so forth. Each set contains opinions expressed by four different people who are called A, B, C, D. After reading each set, make up your mind as to the opinions with which you agree. You may agree with one or more. Write A, B, C, D (one or more) to indicate the person or persons with whose opinions you agree. If you disagree with all, please write your own opinion in the space provided.

Set I

A says: In an over-crowded city, unemployment is likely to be a problem.

B says: Transportation is usually a problem in an over-crowded city.

C says: Over-crowding tends to give rise to crimes of all sorts.

D says: It does not matter even if a city is over-crowded. City life offers more attractions than rural life.

I agree with ....

I disagree with all because ....

Set II

A says: I prefer to see high birth rates and high death rates.

B says: I prefer to see low birth rates and low death rates.

C says: I prefer to see low birth and high death rates.

D says: I prefer to see high birth and low death rates.

I agree with ....

I disagree with all because ....

Set III

A says: A man who has many children is happy.

B says: It is better to have sons than daughters.

C says: I would feel guilty if I try to control the size of my family.

D says: I like to have two children; it does not matter whether they are boys or girls.

I agree with ....

I disagree with all because ....

* * * * * * * * * * *

Instrument IV is intended to ascertain the capability of learners to recognize value conflicts, as it is an important element in the development of problem solving and value clarification skills. A score of 1 may be assigned for each correct response. The instrument should also provide opportunities for classroom discussions.

Instrument IV

(Rubric and sample items)

Each set below shows opinions which are held by some people. After reading each set, make up your mind as to whether the opinions are in *conflict* or are in *agreement*. Underline *C* if there is a conflict or *A* if the opinions are in agreement.

Set I

1. I think that the best way of having help at home, on the farm and in my old age is to have a large number of children.
2. I find that it is very difficult to give all children a good education in a large family.

C A

Set II

1. Small families are good for the future development of the country.
2. It is better for me to have a large family so that I will be well-off in my old age.

C A

Set III

1. Small families are good for the future development of the country.
2. I think that in a small family the children can have more attention and can be raised more carefully.

C A

Set IV

1. Small families are good for the future development of the country.
2. I want to have a small family so that I can educate all my children very well.
3. I want to have at least one son, or perhaps two sons.

C A

Set V

1. In order to produce 1 pound of beef, about 10 pounds of grain and vegetable matter have to be fed to cattle. Using grain to feed cattle is to deny grain to feed human beings, several millions of whom are starving.
2. I like beef very much and would like much more cattle to be slaughtered in the country to bring down the price of beef.

C A

Set VI

1. Throwing garbage into a river pollutes the water. It is harmful for fish and also for human beings who may use the water for drinking purposes.

2. Although I live on a river bank, I make it a point not to throw any garbage into the river.

C A

* * * * * * * * * * *

Instrument V is intended to assess problem solving skills with affective overtones. Endorsement of a constructive response (for example, b, c and h in the case of the first item) should receive a score of 1, while endorsement of others will receive 0.

Instrument V

(Rubric and sample items)

Read each of the following passages and carry out the instructions given regarding each.

1. Arun is a daily labourer in a factory. He has a wife and two children. One is a daughter aged two and a half years, and the other is also a daughter aged one year and three months. The factory is a failure, and it is closed down with the result that Arun loses his job. Arun's friends advise him to do many things such as those listed below. Which of them do you endorse? Mark √ on the dotted lines if you endorse the advice. You may endorse one or more.

   a) Arun should take legal action against the owner of the factory ....

   b) Arun should register his name in an employment exchange (that is, an office which assists in finding employment) ....

   c) Arun should collect money from his friends and relations, buy up the factory and run it himself ....

d) Arun should divorce his wife ....

e) Arun should take medical advice about family planning ....

f) Arun should become a member of a political party ....

g) Arun should try to get more children, hoping to get a son who would bring him good luck ....

h) Arun should look for work in other factories ....

2. Arun is married to Veena and they live on a small farm which they own. Their daughter, Ranee (age 14 years), attends the village school. She is very beautiful. A rich merchant from a nearby town sees her on the road, makes enquiries about her parents, and sends a person to meet Ranee's parents with a proposal that she should be given in marriage to him. Which of the following courses of action would you endorse. Mark ✓ on the dotted lines. You may endorse one or more.

a) Arun should agree at once to the proposal ....

b) Arun should ask the merchant to renew his proposal after Ranee is at least eighteen years old ....

c) Ask the merchant if he would be willing to buy Arun a house in town and provide him and his wife with a regular income so that they could live in town after the daughter's marriage to him ....

d) Inform the merchant that Arun does not trust people from the town ....

* * * * * * * * * * *

Instrument VI is another instrument to assess problem solving skills with affective overtones. Unlike Instrument V, there are no structured responses. A content analysis will have to be made of the responses, and a scoring scheme, such as giving 1 mark to each response that is constructive and reflects a rational course of action, adopted. Apart from individual administration, the problems given (and similar problems which would hopefully be suggested by teachers) could be used to assess group problem solving procedures. Each problem may be given to a group of five or six learners for discussion, their interaction noted by the teacher if possible, and one person in the group may be asked to report orally the discussions of the group and the conclusions reached. (It will be noted that item *a* does not have an affective overtone, and is basically cognitive, but it should serve well as a first item in an instrument in which there are no structured responses)

Instrument VI

You were born in a village, but you are now employed in a town 100 kilometres away. You visit the village from time to time as you have relatives and friends living in it.

a) During one of your visits, you meet a friend, who is a farmer. He tells you that although he cultivated the same extent of rice land as his neighbour, his harvest was only about half his neighbour's. What questions would you ask him about his problem, and what suggestions would you make?

b) You visit a friend who has a daughter 24 years old. She teaches in the village school. Your relative tells you that although he wants to give her in marriage, she says that she prefers to remain single. What advice would you give either to the friend or to the daughter?

* * * * * * * * * * *

Instrument VII is intended to give an opportunity to the learner to project his life into the future. The responses cannot, of course, be objectively scored (this is not always important), but a content analysis would be very meaningful. Special attention should be paid to the style of life envisaged and to life cycle events in their implications for quality of life.

Instrument VII

How many years old would you be in the year 1999?
Write your answer here .....

What important events in your life might happen between now and the year 1999? Write them down as briefly as possible.

Imagine what your life would be like in the year 1999, mention where you think you would be living, with whom you would be living, what your work and activities would be, and what would be the work and activities of those living with you. Apart from these, you can also write about any other things concerning your life which you consider important. You have 30 minutes for this exercise.

* * * * * * * * * * *

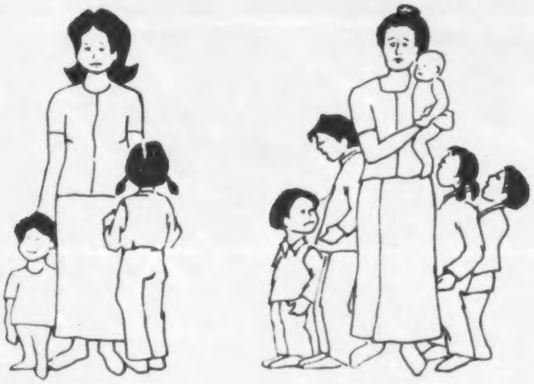
Instrument VIII The use of pictures is envisaged in this instrument and the responses subjected to a content analysis as in the case of Instrument VII. The instructions to be given will differ from picture to picture. The instructions suggested for the picture given below are as follows:

Look at the picture given below. You see two women in it. Imagine that you are the younger of the two, describe the life in the family.

a) at present

b) as it might be in three or four years' time

c) as it might be in twenty to thirty years' time



Conclusion

In evaluating learning outcomes, one need to bear in mind that it is unwise to evaluate everything learned. Spot evaluation, where a rough but approximately representative sampling of content covered is suggested to have an indication of whether the objectives have been attained.

In concluding this chapter, it must be again emphasized that its contents must be regarded as being tentative and suggestive for exploration by programme personnel and teachers who maintain day-to-day contact with learners. Its purpose will have been more than amply served if national population education projects would make an effort not merely to follow up the ideas offered about but also to improve upon them, and more importantly, to develop others, and possibly more effective, item types and instruments.

Chapter Five

EVALUATION OF TRAINING IN POPULATION EDUCATION

During the past few years, a number of countries in the Asian region have been engaged in the training of administrators, curriculum developers, teacher educators and teachers through pre-service as well as in-service training programmes in order to introduce population education. In some countries courses in population education are being offered at the graduate level. For example, in the Philippines, the College of Education of the University of the Philippines is offering a Master's degree course in population education. Similarly, in Thailand, Mahidol University is also offering a Master's degree course in population education. In India, several universities are offering special courses in population education at the B.Ed., M.Ed. and M.A. levels. Countries having national population education programmes funded by the U.N. Fund for Population Activities (UNFPA) have developed designs for the extensive in-service training of various categories of personnel in population education using a variety of modalities for training. Chapters four and five of the *Training Manual in Population Education* published by the Unesco Regional Office, Bangkok, discusses different strategies which can be used for pre-service and in-service training, and the interested reader may consult that Manual.

In most of the population education programmes, efforts have been concentrated on training as many persons as possible within a short period of time. The assessment of the training programmes in terms of their quality has so far been one of the weak points of population education programmes, although some efforts have been made in a few countries to devise and use tools for the evaluation of training programmes. The reasons for this are varied. One reason is that most population education programmes are being funded by external sources for a specific period of time and the efforts of the project personnel are to train as many persons as possible within the period of external funding. Secondly, there is a paucity of instruments which can be used by the programme personnel for evaluation of the programme as a whole as well as its various components.

The evaluation of training should be carried out, firstly, to determine the extent to which the objectives of the training have been achieved (namely - transmission of knowledge about population education, development of intellectual skills for cognitive and affective inquiry, and modification of values or behaviour), and secondly, to bring about improvements in the planning and implementation of the training programme, including the evaluation processes themselves.

Evaluation of training can be divided into three stages:

1. Pre-training evaluation or context evaluation;
2. In-training or process evaluation; also called formative evaluation;
3. Post-training evaluation or product evaluation; also called summative evaluation.

Pre-training evaluation

Pre-training evaluation includes gathering baseline data on knowledge, attitudes and skills of the trainees; analysis of their training needs and of the organizational requirements of the training. A thorough task analysis helps in the identification of discrepancies which become the basis for the selection of relevant objectives of training. The analysis of training needs helps to make a decision as to whether training is necessary or whether a supply of teaching and other materials would suffice. Pre-training evaluation also helps to design training programmes including training strategies, learning activities and the management system.

In planning the training programme, the following should be considered: procedures, materials, facilities, schedules, staff requirements, and budget. The planning can be done by committee deliberations, consulting specialists in the various disciplines, review of existing reports and other literature on the subject, and questionnaires.

The importance of the pre-training evaluation cannot be overemphasized, considering that it provides the essential basis for the designing of the training programme.

In-training evaluation

In-training evaluation is the process of assessing the training programme itself as it progresses. The main purpose of in-training or formative evaluation is to find out the extent to which the programme is being implemented as planned and what in-course improvements should be made to attain the objectives.

The purpose of collecting and analysing data at this point of the training programme is to decide what changes in the programme are necessary. These changes may take the form of additional learning activities, practice sessions, and remedial activities or tutoring.

In-training evaluation can be done through short tests, informal talks with the trainees to get their opinion, observations of trainees, use of devices such as observation scales, and opinion questionnaires. An extremely valuable technique for the formative evaluation of training programme is to constitute a steering committee composed of representatives of the trainees which meets regularly to review the training activities and suggest appropriate changes as these become necessary. These procedures will provide information regarding the activities and processes leading to the achievement of the objectives and be suggestive both for improving the programme under way, and organizing subsequent training programmes.

Post-training evaluation and follow-up activities

At the end of the training programme, there is a need to determine whether the objectives have been achieved, and whether the trainees show some measurable gains in knowledge, attitudes and skills. This is done to find out the extent to which training objectives have been achieved, the original training scheme has been implemented, the trainees show measurable gains in knowledge and understanding, attitudes and skills, and the training programme or any parts of the programme should be revised, continued or terminated.

The summative evaluation can be done through the use of comprehensive tests, demonstration lessons, comments of observers and specialists, impressions of the trainers and trainees and evaluation check-lists.

After the training programme, evaluation should continue by means of follow-up activities. The follow-up activities will be more meaningful and interesting if the trainees and trainers plan and work them out before the training programme is over. The trainee has the knowledge of his role before and after the training, while the trainers have the experience and expertise needed in follow-up strategies and of the problems encountered by the trainees in the past.

Some examples of follow-up activities are:

1. keeping a two-way communication open;
2. investigating the trainees' performance on-the-job or teaching effectiveness;
3. visiting the trainees on the job;
4. using refined instruments to measure the on-the-job performance of the trainees;
5. inviting the trainees to the training centre to give first-hand information on their experiences; and
6. conducting refresher courses.

Sample case studies

Evaluation of regional training course, 1977. The Unesco Regional Office for Education in Asia, Bangkok, organized in 1977 a Regional Training Course in Population Education for key personnel from the region. The training course consisted of two phases: (i) training through correspondence, and (ii) face-to-face training.

An evaluation was done during both the phases. During the correspondence phase, lesson units were sent to the trainees enrolled in it. They were asked to answer questions given at the end of the lesson units and send them to the Regional Office. The questions involved extra readings in addition to lessons, collection of data and critical thinking on the part of the trainees. The evaluation of the responses was done by the Mobile Team in Population Education. A selection of trainees was made for the face-to-face training on the basis of their responses. A pre-test was administered to the candidates selected on the first day of the face-to-face training course. It was intended to find their knowledge as well as attitude towards population and population education. Likewise, the pre-test helped to identify the areas in which the participants were deficient in. The training schedule was modified in the light of the results of the pre-test and open discussions with the participants.

Formative evaluation consisted of end-of-week reviews of the training programme through plenary sessions. The week's activities were reviewed, and the programme and methodologies for the following week were modified.

At the end of the course, a post-test and evaluation of the training as a whole was done. The post-test was the same as the pre-test. The purpose of the post-test was to find out whether there was any significant gain in knowledge and attitude of the participants as a result of the training. The evaluation of the training programme provided feedback in terms of the weaknesses and strengths of the programme. This feedback will be used for designing future training programmes.

The objectives and the organizational aspects of the training programme were evaluated using a five-point scale whereas the items in the open-ended portion of the evaluation form were tallied and ranked according to the frequencies. The test was used for finding out whether the differences in the pre-test and post-test on knowledge-gain and attitudinal change were significant.

The instrument used for the evaluation of the training programme is given in the next page. Sample items from the pre-test (which was identical with the post-test) will be found in chapter four.

I. Objectives: Please mark ✓ under the column which describes the extent to which you think each objective of the training programme has been achieved.

Objectives	Completely achieved (4)	Achieved to a large extent (3)	Moderately achieved (2)	Only partly achieved (1)	Not achieved (0)
1. to develop understanding of population concepts					
2. to analyse a. the role of population in development					
b. population issues in your country and in the world					
3. to develop awareness of a. ethical issues in population education					
b. the importance of programme development for population education in out-of-school sector					

Objectives	Completely achieved (4)	Achieved to a large extent (3)	Moderately achieved (2)	Only partly achieved (1)	Not achieved (0)
4. to obtain insights about a. the organization of population education programmes in the region					
b. methods of teaching, such as value clarification and discovery-oriented approaches					
c. population-related decision-making					
d. curriculum development in population education					
e. instructional materials development for out-of-school population education					

Objectives	Completely achieved (4)	Achieved to a large extent (3)	Moderately achieved (2)	Only partly achieved (1)	Not achieved (0)
f. performance evaluation					
g. research utilization strategies					
h. the linkages of formal and non-formal education					

II. Organization: Please check each item in the appropriate column according to how you rate these features of the training programme.

	Very good (5)	Good (4)	Satisfactory (3)	Poor (2)	Very poor (1)
1. Planning and preparation of the training course					
2. Provision for self-study					
3. Duration of the programme					
4. Arrangement of time schedule					
5. Usefulness of assignments					
6. Amount of practical activities					
7. Effectiveness of instructional materials					
8. Appropriation of training activities					
9. Presentation of lectures/talks					
10. Presentation of country experiences					
11. Quality of resource persons					
12. Extent of friendly atmosphere					
13. Adequacy of resource materials					

	Very good (5)	Good (4)	Satisfactory (3)	Poor (2)	Very poor (1)
14. Provision of library facilities					
15. Overall rating of programme					
16. Other arrangements, a. hotel, b. travel					

III. General observation:

1. What aspects of the programme did you find

   a. most useful

   ____

   ____

   ____

   b. least useful

   ____

   ____

   ____

2. Suggest topics that you feel should have been included in the programme.

   ____

   ____

   ____

3. Which topic, in your opinion, were not sufficiently covered?

   ____

   ____

4. Which, if any, topic should not have been included?

5. Which method of presentation did you prefer?

6. What changes/modifications would you suggest in the organization of the programme?

7. What kind of follow-up activities do you propose to undertake after the programme?

8. What kind of follow-up activities do you expect from us?

9. Do you consider the training programme to be:

	Very important (3)	important (2)	Minor important (1)	Not important (0)
a. In general	_____	_____	_____	_____
b. For your country	_____	_____	_____	_____
c. For your own work	_____	_____	_____	_____

Additional comments (if any) ______________________________

10. Overall, were your expectations of the course fulfilled? Yes/No. If no, why?

11. Further comments/suggestions.

Evaluation of the training programme for the first supervisory training team (STT) Population Education Programme, Philippines.[1] One of the training programmes for STTs in the Philippines was held from 6 November - 15 December 1972. The training programme was designed to provide trainers with in-depth background on population and population education as well as competencies in training teachers, principals and district supervisors for the teaching of population education in their respective schools and institutions. Fifty participants were selected for this course. The participants comprised division supervisors of health, science, social studies, mathematics and home economics.

Formative as well as summative evaluation was employed to assess the effectiveness of the training programme. Among the evaluative instruments used to evaluate the training programmes were: (a) a check-list to survey understanding of objectives, priority needs, role expectations and procedural suggestions; (b) a test on population knowledge, attitude and practice (KAP); and (c) a final evaluation questionnaire to determine the achievement of objectives, meeting of priority needs, efficiency of instruction, efficiency of management, effectiveness of evaluation and follow-up of the programmes.

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[1] Population Education Programme. Evaluation of the training program for the first supervisory training team (STT), Manila, 1973.

Pre-training programme information was gathered through a questionnaire which was sent to the participants. This provided general background information of the participants including their knowledge, attitude and practice about population matters.

Formative evaluation was done through the check-list and the feedback questionnaire. They provided information on the strengths and weaknesses of the different aspects of the training programme, and served as the basis for adjusting, modifying and improving the weak points of the training course.

Summative evaluation was done at the end of the course through KAP post-test and trial evaluation check-list. The KAP post-test was the same as that given in the pre-test. The test was applied to test the significance of mean rating differences in knowledge and attitudes. Summative evaluation also consisted of finding out the opinions on the extent to which the training programme achieved the objectives of the training, the extent to which priority needs were met, the efficacy of instruction, the effectiveness of the management of the training programme, and suggestions for the follow-up of the training programme.

The check-list for the survey of priority needs, role expectations and procedural suggestions; feedback questionnaire; and final evaluation are given below. Sample items from the KAP test are given in chapter four.

Survey of priority needs, role expectations, and procedural suggestions

A. *Understanding of objectives:*

Which of the following do you understand to be the general objectives of this workshop? Please check.

_____ 1. To understand the population situation at macro and micro-levels.

_____ 2. To gain an insight into the dynamics of population education.

_____ 3. To develop competence in the use of the discovery approach/other teaching techniques.

_____ 4. To be prepared to train teachers to use prepared curriculum materials in population education.

_____ 5. To exchange ideas on population education.

_____ 6. To analyse values regarding population education.

_____ 7. Others: (Please specify)

____

____

B. *Priority needs:*

Encircle the appropriate number on the scale from 1 to 5 (low to high) for your priority needs as participants:

1.	Orientation to programme objectives and procedures	1	2	3	4	5
2.	Content: a. Introduction to demography	1	2	3	4	5
	b. Demography and other factors	1	2	3	4	5
	c. Population education	1	2	3	4	5
3.	Selecting, adjusting, using methods of instruction	1	2	3	4	5
4.	Selecting, adapting, using materials of instruction	1	2	3	4	5
5.	Diagnosing, evaluating, meeting teacher needs	1	2	3	4	5
6.	Others: (Please specify)					

____

____

C. *Role expectations:*

Encircle the appropriate number of the scale from 1 to 5 (learning to sharing/teaching) for each of the following activities:

1.	Orientation to programmes objectives procedures.	1	2	3	4	5

2. Content: a. Introduction to demography	1	2	3	4	5
b. Demography and other factors	1	2	3	4	5
c. Population education	1	2	3	4	5
3. Selecting, adapting, using methods of instruction	1	2	3	4	5
4. Selecting, adapting using materials of instruction	1	2	3	4	5
5. Diagnosing, evaluating, meeting teachers' needs	1	2	3	4	5

6. Others: (Please specify)

____

____

D. *Procedural suggestions:*

To what extent would you like the following activities to be included in the workshop session? Check as many as you like.

	To great extent	To some extent
1. Lecture	______	______
2. Small group discussion	______	______
3. Simulated/real classroom activities (Role-playing, interview, and so forth)	______	______
4. Demonstration teaching	______	______
5. Open forum/panel discussion/debate	______	______
6. Film viewing	______	______
7. School/clinics	______	______
8. Buzz/brainstorm session	______	______
9. Others: (Please specify)	______	______

____

____

Feedback questionnaire

Instructions: We would like to get opinion on the workshop instruction and on your participation to help us improve later sessions of this workshop. Check for each item the appropriate number on a 5-point scale (ranging from very good/high to very poor/low) according to how you rate it.

	Very poor/ low				Very good/ high
	1	2	3	4	5
A. *Workshop Instruction*					
1. My understanding of the instructional objectives of the unit					
2. The relevance of the objectives to my needs.					
3. The extent to which the objectives were met.					
4. The usefulness of the content or subject matter.					
5. Instructional methods used.					
6. Mastery of subject matter and clarity of speakers' presentations.					
7. Effectiveness of instructional materials.					
8. Adequacy of instructional materials.					
9. Clarity of instructions about work exercises, if any.					
10. Relevance of work exercises, if any.					
11. Relevance of reading assignment, if any.					

	Very poor/ low			Very good/ high	
	1	2	3	4	5
12. Class participation intersection group discussion.					
13. Adequacy of time alloted for discussion.					
14. My overall rating of the unit.					
15. Suggestions:					
B. *My participation in:*					
1. Planning the activities/programme.					
2. Asking questions.					
3. Answering questions.					
4. Sharing pertinent ideas.					
5. Small group work/discussion.					
6. Preparing and presenting instructional materials.					
7. Evaluating the programme/activities.					
8. Informal socialization with staff/ resource participants.					
9. Informal association with the co-trainees.					
10. My overall rating of my participation.					

	Very poor/ low			Very good/ high	
	1	2	3	4	5
11. Suggestions: ____________________ ____________________ ____________________					
12. Listening.					
13. Assimilation.					

Final evaluation

Objectives: We would like to find out your opinion on the extent to which the STT training programme objectives have been met for the total participants and for you personally.

1. *Instructions:* Please place a check mark under the column that best describes the extent to which you think each objective has been achieved during the training programme.

	1 Not at all achieved	2 Only partly achieved	3 Moderately achieved	4 For the most part achieved	5 Completely achieved
a. Total Participants 1) To analyse and explain the population situation at macro and micro levels					
2) To explain the dynamics of population education					
3) To train teachers to use prepared curriculum materials in population education					
4) To analyse values and attitudes regarding population education					
5) To use effectively the discovery approach and other teaching techniques					
6) To exchange ideas on population education					

	1 Not at all achieved	2 Only partly achieved	3 Moderately achieved	4 For the most part achieved	5 Completely achieved
7) To construct and interpret charts, maps and graphs					
b. Yourself personally 1) To analyse and explain the population situation at macro and micro levels	1	2	3	4	5
2) To explain the dynamics of population education	1	2	3	4	5
3) To train teachers to use prepared curriculum materials in population education	1	2	3	4	5
4) To analyse values and attitudes regarding population education	1	2	3	4	5
5) To use effectively the discovery approach and other teaching techniques	1	2	3	4	5
6) To exchange ideas on population education	1	2	3	4	5
7) To construct and interpret charts, maps and graphs	1	2	3	4	5

2. *Priority needs:* Encircle the appropriate number on the scale from 1 (low) to 5 (high) to indicate the extent to which

   a. The need was important to you at the beginning of the training programme.

   b. The need was emphasized during the training programme.

   c. The need was met.

	a. Priority of participant needs at the beginning of the training programme.	b. Emphasis during the programme.	c. Need met.
	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
1) Orientation to programme objectives, procedures	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
2) Content a. Introduction to demography	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
b. Demography and other factors	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
c. Population education	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
3) Selecting, adjusting, using methods of instruction	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
4) Selecting, adapting, using materials of instruction	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

	a. Priority of participant needs at the beginning of the training programme.	b. Emphasis during the programme.	c. Need met.
	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
5) Diagnosing, evaluating, meeting teacher needs	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
6) Practice teaching/test teaching/demonstration	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

3. *Instruction:* Encircle the appropriate number on the scale from 1 (poor) to 5 (excellent) to evaluate each of the following items:

	Poor 1	2	3	4	Excellent 5
a. Relevance of instruction to participant needs	1	2	3	4	5
b. Sequence of instructional topics	1	2	3	4	5
c. Instructional methods/ activities					
1) lecture	1	2	3	4	5
2) small-group discussion	1	2	3	4	5
3) plenary session	1	2	3	4	5
4) simulation exercise	1	2	3	4	5
5) role playing	1	2	3	4	5
6) film viewing	1	2	3	4	5
7) individual reading	1	2	3	4	5
8) individual written work	1	2	3	4	5
9) peer teaching	1	2	3	4	5
10) peer demonstration	1	2	3	4	5
d. Instructional materials	1	2	3	4	5
e. Programme sessions	1	2	3	4	5
f. Staff instructions	1	2	3	4	5
g. Participant listening/ participation	1	2	3	4	5

Comments/suggestions:

____

____

____

4. *General aspects of the management of the training programme:*

   a. Encircle the number on the scale 1 (too little) to 5 (too much) to indicate your rating for each of the following items:

	Too little 1	2	About right 3	4	Too much 5
1) Extent of participants' involvement in planning the training programme	1	2	3	4	5
2) Amount of time devoted to orientation	1	2	3	4	5
3) Amount of time scheduled for instruction of topics assigned	1	2	3	4	5
4) Amount of time devoted in practicum (poor learning, demonstration, and so forth)	1	2	3	4	5
5) Total amount of time for the training programme	1	2	3	4	5

b. Encircle the number on the scale from 1 (poor) to 5 (excellent) to indicate your rating for each of the following items:

	Poor 1	2	3	4	Excellent 5
6) Degree to which the training atmosphere was friendly and supportive among participants	1	2	3	4	5
7) Degree to which the training atmosphere was friendly and supportive among participants, staff and resource persons	1	2	3	4	5
8) Degree to which level of instructional content was appropriate to your professional experiences	1	2	3	4	5
9) Degree to which participants were treated as professionals	1	2	3	4	5
10) Conference hall, facilities and sound system	1	2	3	4	5
11) Secretariat services	1	2	3	4	5
12) Library services	1	2	3	4	5
13) Adequacy of financial assistance	1	2	3	4	5

c. Overall rating of the management of the training programme. _____

d. Comments/Suggestions:

____

____

____

5. *Evaluation:*

a. Did you participate in the steering committee session? Yes ____ No ____

b. Did you relay your reactions, suggestions, comments through your representatives to the steering committee session? Yes ____ No ____

c. Encircle the number on the scale from 1 (poor) to 5 (excellent) that indicates the extent to which:

	Poor 1	2	3	4	Excellent 5
1) trainees participated in evaluating various aspects of the training programme	1	2	3	4	5
2) the feedback evaluation enabled participants to communicate their assessments of and reactions to instruction	1	2	3	4	5
3) the steering committee enabled group representatives to communicate group/individual needs and problems to the staff	1	2	3	4	5
4) the staff members who taught more than once responded to the feedback results (improved their teaching)	1	2	3	4	5
5) the staff responded to or provided for participants needs/problems communicated by steering committee representatives	1	2	3	4	5

	Poor 1	2	3	4	Excellent 5
6) the class analyst's report contributed to the improvement of any aspect of the training programme	1	2	3	4	5
7) population knowledge, attitudes, practices and priority needs of participants have been evaluated	1	2	3	4	5
8) overall rating of evaluation activities	1	2	3	4	5
9) Suggestions/comments:					

6. *Follow-up of training programme:*

a. Should more training programmes like this be held? Yes ____
No ____

b. If yes, give two reasons

1) ______________________________

2) ______________________________

c. What topics do you feel should have been left out?

____

____

d. What topics do you feel should have been included?

____

____

e. What topics do you feel were not sufficiently covered?

____

____

f. What aspects of the training programme did you find most useful? Why?

1) ____________________ because ____________

____

2) ____________________ because ____________

____

g. What aspects of the training programme did you find least useful? Why?

1) ____________________ because ____________

____

2) ____________________ because ____________

____

	Poor 1	2	3	4	Excellent 5
h. Overall rating of the training programme					

i. Suggestions/comments:

____

____

____

Conclusion

The evaluation of any training programme is extremely important, because it does not always follow that when training takes place acquisition of knowledge, development of attitudes and change in behaviour of the trainees come by automatically. Indeed, there can be teaching without learning.

Chapter Six

EVALUATION IN THE OUT-OF-SCHOOL SECTOR

The techniques for evaluation and the instruments suggested in chapters three and four focus primarily on the in-school sector, although some of them are adaptable for use in out-of-school programmes as well. There are, however, certain emphases in out-of-school programmes which necessitate the use of somewhat distinctive evaluation instruments.

In the in-school sector, the profile of students to be exposed to a programme is assessed relatively easily as a certain homogeneity of school background may be assumed. It is quite different with the out-of-school sector. Baseline surveys are therefore essential for programme planning. Apart from data on the demographic characteristics of the target population, and their knowledge - attitudes - practices related to population education, it is also necessary to ascertain their level of literacy and their responsiveness to visual modes of instruction.

The learners in out-of-school programmes often include many who are illiterate or semi-literate. Tests requiring certain levels of literacy, and the usual paper and pencil tests are inappropriate for them. In order to make a fair evaluation of learning needs and outcomes in the case of learners who are semi-literate or illiterate, it is necessary to develop visual tests requiring no reading ability, to be administered by giving the instructions orally.

In educational programmes for out-of-school youth and adults, group work techniques occupy a more prominent place than in in-school programmes. This feature gives rise to the need for the development of evaluative procedures for the systematic assessment of the effectiveness of group processes.

In the case of the out-of-school sector, population content is generally included in broad-based educational programmes, such as programmes of functional literacy, community development, agricultural extension, rural development, manpower and skills development, and maternal and child health. Population content may also be introduced in connection with religious, recreational, or income-generating (for example, poultry raising, piggery, fishing) activities in which youth and adults are engaged. In all these cases, test items used for evaluation purposes might be related to the nature of the programme or activity that has provided the opportunity for the inclusion of population content.

The progress of learners in the out-of-school sector has to be monitored carefully to assist in programme implementation. Periodic progress reports including quantitative data on the number of learners reached, the number of sessions held, the topics discussed, the methods used, the achievements recorded, with suggestions for follow-up or remedial activities will supply a regular feedback mechanism that would lead to programme improvement.

With these considerations in mind, several instruments are suggested in this chapter. In as much as some of the instruments suggested for the in-school sector may be appropriate for the out-of-school sector with such modifications as oral administration and provision for oral responses, some of the instruments suggested for the out-of-school sector may likewise be adaptable for use in connection with in-school programmes.

Baseline survey instruments

It is important to design instruments to collect basic information about the background of the target audience with special reference to the demographic characteristics, problems, needs, interests and abilities. Such information will serve as the benchmark for planning, monitoring and follow-up activities. Such an instrument generally covers the following aspects of the learner's profile.

1. demographic characteristics, such as age, sex, locality, occupation, religion, marital status, size of family and income

2. knowledge, attitude, and practice of population education and related concepts

3. literacy skills, visual perception information

Closely related with the cognitive knowledge of the learner is his/her behaviour/attitude towards population education. Needless to say, a positive attitude helps achieve the objective of population education programmes whereas a negative attitude is detrimental for progress. It would thus be essential to determine the attitude of learners, before initiating a programme so that appropriate strategy and contents would be designed for population education programmes.

A few instruments, relatively complete in themselves, and sample items for a few other instruments are given below, after a brief description of each.

Instrument IA is a baseline survey form for administration to learners who have attained a certain level of reading and writing ability. It may also be used with the illiterate or with those who have not attained the requisite level of literacy by using a mode of administration in which the instructor or field worker reads out the items to the learners individually, and indicates on the survey form the oral response made by each learner.

Instrument IB contains a number of sample items to constitute an instrument specially intended to assess the knowledge of the target population about population education. Response could be direct or through the instructor or field worker as indicated in respect of Instrument IA.

Instrument IC is an attitudinal scale which may also be administered direct or through the instructor or field worker.

Instrument ID is a test of reading and writing.

Instrument IE consists of sample items to constitute a visual perception test. In preparing it, a decision is first taken about the concepts and ideas to be presented through visuals. Based upon the nature and technicality of the concepts, a set of picture cards is prepared and arranged in a sequence. These cards are then shown one-by-one to a sample audience, and their responses with regard to the degree of understanding and comprehension of the idea are recorded using one data sheet for each card. The examples given below will illustrate the testing of the ability of the respondent to receive a message through visuals as well as the comprehension and interpretation of the idea presented.

A general point which might be made about all the instruments described is that they may be used not only before a programme begins, but during or after the programme, making such modifications as are necessary.

Instrument IA

Baseline survey form

Serial No. ____________________

Name of the village ____________________

I. General information

Please check appropriate answers:

Respondent

( ) family head
( ) spouse
( ) dependent

Marital status

( ) single
( ) married
( ) widowed

Religion

( ) Buddhist
( ) Confucian
( ) Hindu
( ) Muslim
( ) Protestant
( ) Roman Catholic
( ) Other (specify)

Age ____________

Age at marriage ____________

Highest grade passed in school: ____________

Total number of persons in the household ____________

Name of family member	Relation with head of family	Age	Sex	Education	In-school	Out-of-school

Main sources of income ____________________ Amount ______________

Occupation ________________________________

Other sources ______________________ Amount __________

______________________ Amount __________

______________________ Amount __________

Total amount: __________
(annual)

II. Knowledge, attitudes and practices

Knowledge, attitudes and practices	Yes	No	Don't know	No comments
1. Is your family income adequate?				
2. Do you have reading materials at home?				
3. Do you listen to radio broadcasts?				
4. Do you have time for recreation?				
5. Do you have adequate recreational facilities?				
6. Do you have any knowledge of family planning?				
7. Have you and your husband/wife ever discussed the number of children you wanted?				
8. Do you think your country is over-populated?				
9. Do you practise family planning?				
10. Do you favour early marriage?				
11. Do you favour a big family?				
12. Do children provide security in old age?				
13. Do children come because it is the will of God?				

Knowledge, attitudes and practices	Yes	No	Don't know	No comments
14. Have you attended any seminar, workshop, lecture, on population education?				
15. Will population education help to improve the quality of family life? (Standard of living, education, nutrition, general health)				
16. Are there any existing organizations in your community? (Welfare, civic, religious)				

III. 1. What problems do you have in your village?

____

____

____

____

2. Is the community exerting efforts towards the solution of these problems? Yes ______ No ______

3. If not, why not?

____

____

____

____

Instrument IB

Questionnaire on population education

Name of respondent ______________ Name of village ______________

The following statements are related to population education. Please read carefully each statement and mark 'T' if the statement is true and mark 'F' if it is false.

1. In the absence of migration, population increases if there are more births than deaths. ☐
2. The presence of many industries brings growth and progress to a nation without polluting the environment. ☐
3. Throwing your garbage into the river is good for fish. ☐
4. The presence of health workers in a village is useful for promoting healthy living in a community. ☐
5. A low death rate and less epidemic diseases in a village could be attributed to good health and sanitation in the community. ☐
6. Rural-urban migration generally leads to:
   - a. inappropriate housing for immigrant families ☐
   - b. large-scale unemployment in cities ☐
   - c. insufficient educational facilities for immigrant children ☐
   - d. insufficient social services ☐
   - e. emergence of urban slums ☐
   - f. increased proportion of old age population in rural areas ☐
7. Postponing marriage until late in life is one of the acceptable solutions for reducing rapid population growth. ☐
8. Practising family planning means foregoing sexual pleasure. ☐
9. Family planning is intended not only for those who would like to space and limit their children but also for those who would like to have children. ☐

10. Conception takes place only when both ovum and sperm meet in the fallopian tube. ☐

11. The mother has the sole responsibility of looking after the welfare of the family. ☐

12. Religion plays a vital role in one's decision about the adoption of family planning practices. ☐

Instrument IC

Attitudinal scale

The following statements are related to population education. Please read carefully each statement and give your opinion by encircling the appropriate number on the five-point scale shown against each statement.

	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
1. A big family is a blessing	5	4	3	2	1
2. Children provide security in old age	5	4	3	2	1
3. Children come because it is the will of God	5	4	3	2	1
4. Three successive children of the same sex followed by another of the opposite sex bring good luck	5	4	3	2	1
5. Having more children is a demonstration of one's manliness	5	4	3	2	1
6. One must have a son to carry on the family name for the next generation	5	4	3	2	1
7. Family planning helps to improve the quality of family life	5	4	3	2	1
8. A person having more children than his capacity to bring them up decently is morally irresponsible	5	4	3	2	1

	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
9. By having a small number of children better educational facilities for them can be ensured	5	4	3	2	1
10. Big families add to the social problems of the community	5	4	3	2	1

Instrument ID

Reading and writing test

Read the following paragraphs carefully and answer the questions given at the bottom.

Maria Santos, age 20 years, was a lovely girl from Barrio Luksuhin. She was married to Pedro Reyes, age 22 years, a native of Barrio Talisay on June 30, 1970. The couple inherited one hectare of agricultural sugar-cane land, which gave them an income of five thousand pesos (₱ 5,000.00) a year. They had a house of their own beside their field. Maria was such a good housekeeper which made her husband very happy.

One year after their marriage came their first child. He was named Pedro, Jr. after the father. He was a very cute and healthy child. The parents loved him so much and wanted him to be an educated man and so they tried to save twenty pesos (₱ 20.00) a month for his education.

A year after the birth of Pedro, Jr. a baby girl was born to the couple. She was named after her grandmother, and so they loved calling her Maria Teresa.

Then two more daughters came after Teresa, Maria's health began to fail because of repeated pregnancies and household work that over burdened her. The family's income was now found barely enough to meet the needs of the members of the family. Pedro also became sickly because he had to work very long hours.

Questions

1. From where was Mrs. Reyes? ______________________________

   ____

2. Where did the couple live? ______________________________

   ____

3. When were they married? ________________________________

4. How big was their agricultural land? ____________________

5. Which of the children was named after the grandmother?

   ____

6. Why did Mr. & Mrs. Reyes want to save money? ______________

____

7. How many daughters were born to Mr. & Mrs. Reyes? __________

8. If their family's income is ₱ 5,000.00 a year, what was their average income for a month? ______________

9. What was the difference in age between Mr. & Mrs. Reyes?

____

10. At the rate of ₱ 20.00 a month, how much will Mr. & Mrs. Reyes be able to save in one year? ______________

11. How long will it take them to save ₱ 2,000.00? ____________

Note: This is a test used in the Philippines. It has to be adapted for other countries.

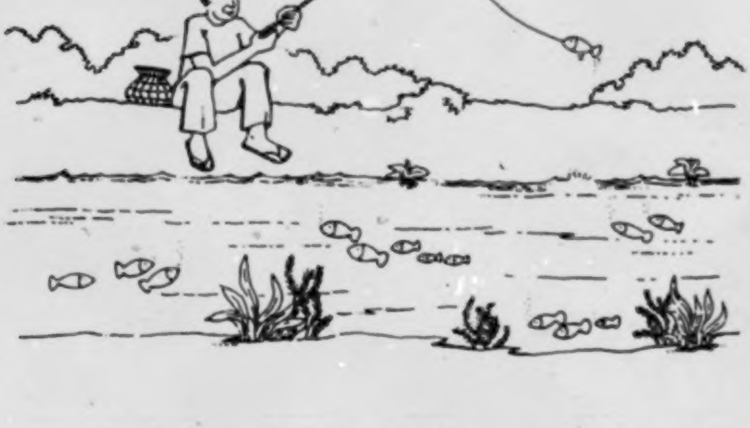
Instrument IE

Visual perception test

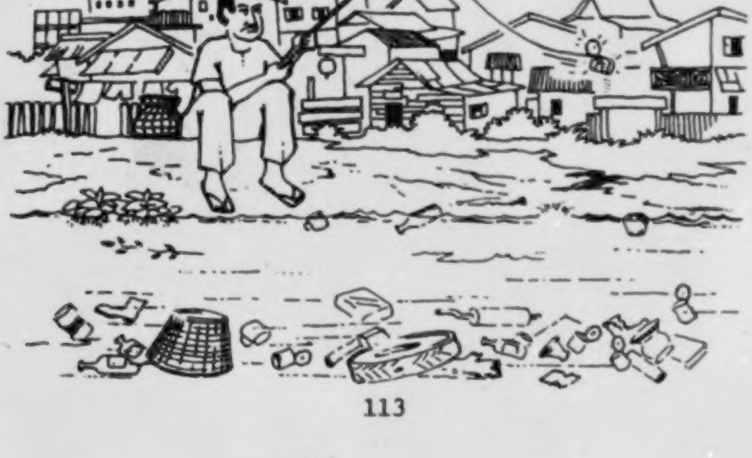
The following guidelines and sample items for assembling a test should be read in conjunction with what has already been stated about visual perception tests on page 103.

A. Testing ability to receive a message

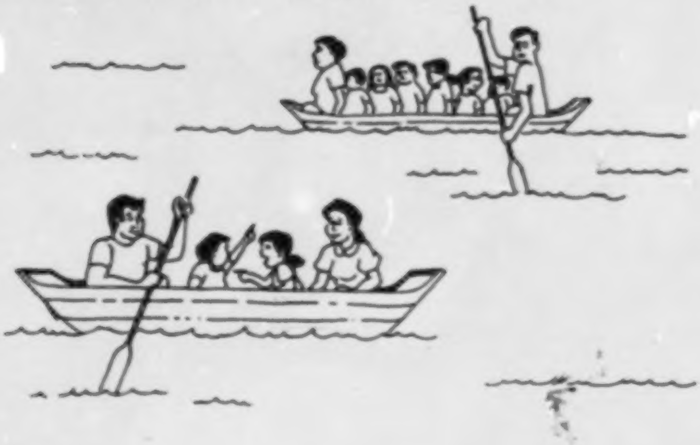
Picture no. 1 - Recognition of the main message in a picture without details



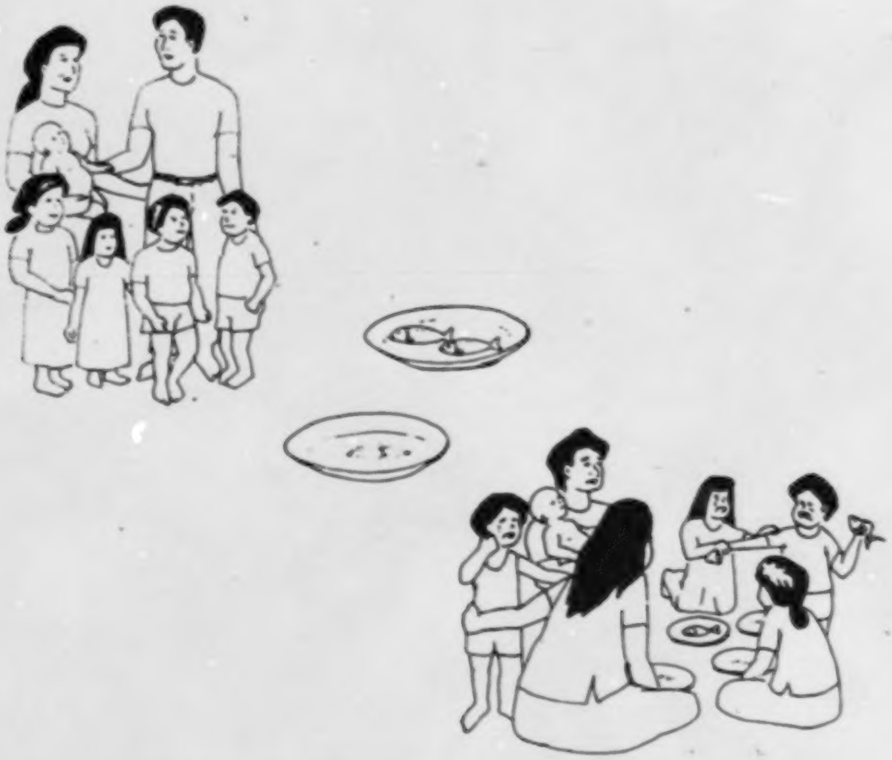
Picture no. 2 - Recognition of the main message in a picture with many details



Picture no. 3 - Ability of interpretation



Picture no. 4 - Ability to understand a logical sequence of pictures



A sample data collecting sheet which can be used for the examples presented above will take the following format:

Data collecting sheet for visual perception test

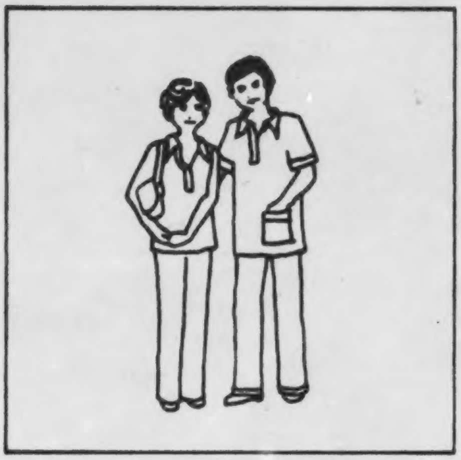
No. of Picture ______ .

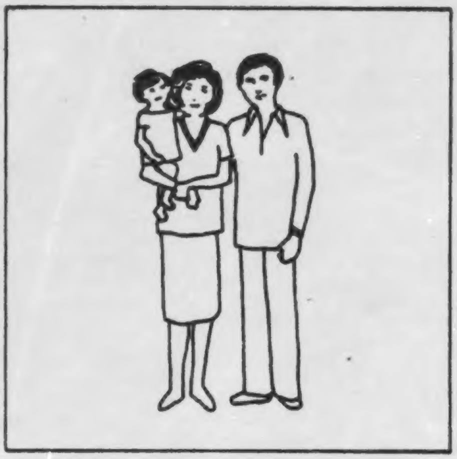
1. Does not recognize anything ______________ .
2. Recognizes a few details ________________ .
3. Recognizes all details but fails to get the main idea ____________________________ .
4. Shows understanding of the message ________ ____ .

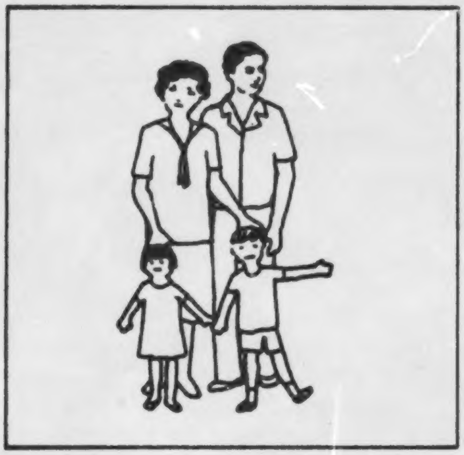
General comment if any ____________________________ .

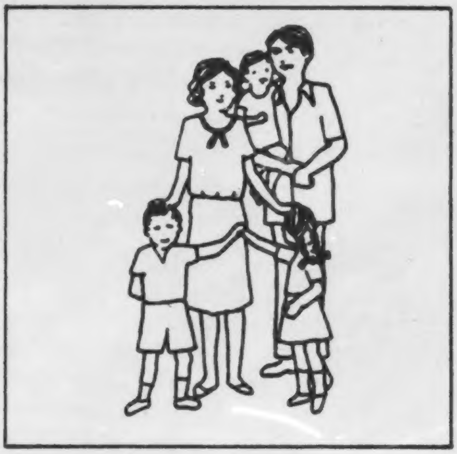
Once it is established that the audience can get the message through visuals, this technique can also be used to test the knowledge and attitude of illiterate persons through multiple choice test items such as those given in the following example:

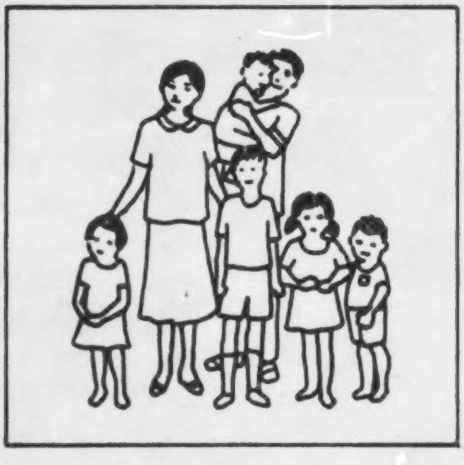
Example: Choose a picture from those given here to represent your ideal family size.

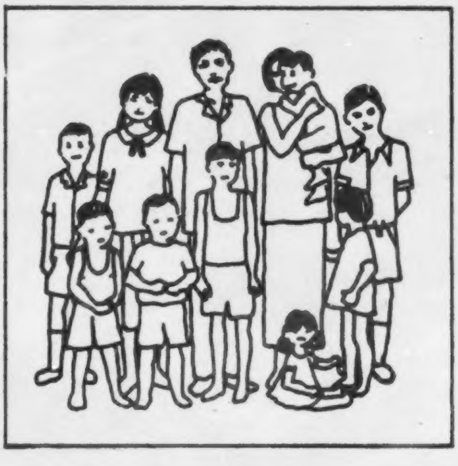












Instruments for evaluating the effectiveness of group approaches

The two self-rating instruments, IIA and IIB given below are intended to assess the effectiveness of group processes by obtaining feedback from learners. Both instruments are intended for self-administration by the learners themselves, and the results should be of value to the teacher, who can compare his own perceptions of the functioning of group processes with the assessments that the learners themselves provide.

Instrument IIA

Learner-learner interaction during a group interaction process

	All (5)	All but one or two (4)	A majority (3)	Slightly less than half (2)	One or two group members (1)	None (0)
During the session on population education, how many group members, including yourself: 1. helped the group make a decision on ideal family size openly rather than by default?						
2. gave due consideration to seriously intended contributions of other members as to their reasons for preferring certain family sizes?						
3. checked (by paraphrasing) to make sure they knew what was really meant before agreeing or disagreeing?						

	All (5)	All but one or two (4)	A majority (3)	Slightly less than half (2)	One or two group members (1)	None (0)
4. spoke only for himself and let others speak for themselves?						
5. viewed all contributions as belonging to the group, to be used or not as the group decided?						
6. had the opportunity to participate in the group if they desired to do so?						
7. tried to find the reasons if the group was having trouble getting work done?						
8. helped bring any underlying conflict into the open so that the group could deal with it?						
9. looked upon behaviours which hindered group process as a group problem, rather than attribute it to a "problem member"?						

Instrument IIB

Self-assessment of learner participation in a group interaction session

	Yes	No
1. Did you have enough opportunity to talk during this session?	___	___
2. Are you satisfied with the attention and consideration the group gave to your comments?	___	___
3. Do you think this group has an "in-group" to which you feel you do not belong?	___	___
4. Did you have feelings of impatience as a result of what was going on in the group that you did not openly describe?	___	___
5. Did you feel hurt, embarrassed or put down by somebody without letting the other person concerned know?	___	___
6. Do you think the staff member was helpful to this group during the session?	___	___
7. Was the experience and learning you gained from this session well worth the time, effort and cost?	___	___

Instruments to evaluate instructor/teacher competence

Instructor/teacher competence is one of the major contributory factors to effectiveness of instruction as manifested in learners' gains in knowledge and changes in attitudes and behaviour. Because of this crucial responsibility, the instructor's competence, in terms of mastery of knowledge and teaching skills, should be monitored and evaluated regularly. A number of instruments are suggested below to evaluate the skills of instructors in attaining the objectives of population education sessions in courses for out-of-school learners. These instruments are all observation check-lists either to be administered by supervisors, peer teachers, the teacher himself/herself, or the knowledge adult learners. It will be desirable to use more than one observer-rater to ensure the reliability of observations.

Instrument IIIA is intended to evaluate the session interaction by first determining the skills or ability of the trainer to be sensitive to learners' needs and interests, and to encourage participation; secondly, the learners' extent of participation; and lastly, both the teacher's and learners' interaction.

Instrument IIIB provides an alternative to IIIA for evaluating the instructor's teaching methodology. It is to be filled out by the learners. The two check-lists can complement and serve as a cross-check on the reliability of the observations.

Instrument IIIA

Check-list to evaluate session interaction *

a. *Questions pertaining to instructor/teacher*

1. To what extent did the group's learning activities in population education seem to be planned in advance?	Seemed not to be planned at all	Every step seemed to be planned in advance

1 2 3 4 5

---

* The answers for all the questions should be recorded on the five-point scale provided against each question.

2. How attentive did the instructor seem to be towards out-of-school learner's learning needs in population education?	Completely inattentive to each learner's needs for help in learning activities	Very attentive to each learner's needs for help in learning activities	1 2 3 4 5
3. How much effort did the instructor put forth to accommodate learner's interests in population education?	Made no attempt to accommodate each learner's interests	Continually attempted to meet each learner's interests	1 2 3 4 5
4. To what extent did the instructor encourage participation in population education learning activities intended for the class as a whole?	Did not encourage any participation from each learner	Encouraged enthusiastic participation from each learner	1 2 3 4 5
5. To what extent did the instructor act in a reserved, officious manner, and expect the class to show deference to him or her?	Trainer conducted class very formally	Trainer conducted class quite informally	1 2 3 4 5
6. How frequently did the instructor make encouraging remarks to each learner or act in some other positively reinforcing way?	Never gave positive reinforcement	Provided reinforcement at every opportunity	1 2 3 4 5
7. How effectively did the instructor formulate population related questions for discussions?	Not effectively	Very effectively	1 2 3 4 5

8. To what degree was the instructor attentive to individual's learning rates in population education?	Not attentive at all			Very attentive			
	1	2	3	4	5		
9. To what extent did the instructor attempt to learn from the learners?	Not at all			Very much			
	1	2	3	4	5		
10. How effectively did the instructor summarize the results of group discussion on population education?	Not at all			Very much			
	1	2	3	4	5		
11. To what extent did the instructor provide individual counselling during the class?	Very little			Very much			
	1	2	3	4	5		

b. *Questions pertaining to the learner*

12. To what extent did the learner remain attentive to activities and work steadily?	Attention wandered; little time spent for working			Consistently attentive and worked steadily	
	1	2	3	4	5
13. To what degree did learner initiate questions regarding population education?	Few questions initiated by learner			Many questions initiated by learner	
	1	2	3	4	5
14. To what degree did you observe the learners helping each other to learn and apply other skills (carpentry, poultry raising)?	Not at all			Very much	
	1	2	3	4	5

c. *Questions pertaining to instructor/learner interaction*

15. Were instructor and learner communicating effectively? (Did each seem to know what the other was talking about?)	Not at all			Very much	
	1	2	3	4	5
16. To what degree did the instructor and the learner empathize with regard to population education problems?	Never			Always	
	1	2	3	4	5
17. How would you rate this class as a whole for spontaneity?	Controlled: only when expected or required			Open: talked spontaneously to instructor and among themselves	
	1	2	3	4	5
18. To what extent did you observe the use of problem-solving skills as applied to population education?	No utilization of problem-solving skills			Frequent utilization of problem-solving skills	
	1	2	3	4	5
19. To what extent did classroom discussion follow the question and answer pattern?	Very closely			Not at all	
	1	2	3	4	5
20. To what degree was participation in discussion broadly distributed?	Very little			Broad distribution	
	1	2	3	4	5

Instrument IIIB

Check-list to evaluate inquiry process for teaching population education

1. Do you think that the instructor:

	Yes	No
a. taught by lecturing and continued with reading, writing and arithmetic?	☐	☐
b. taught by question-and-answer and then stated the problems to be taught?	☐	☐
c. taught by question and answer and then left it to group discussion to resolve problems?	☐	☐
d. started by asking learners about related problems which they faced and based the discussion on them?	☐	☐

2. What is the best and most suitable method for you among the four mentioned above?

a ☐ b ☐ c ☐ d ☐

3. Especially for family planning and population concepts, do you think that the instructor should follow these steps:

	Yes	No
a. Ask about problems of learners, and conduct the discussion according to the problems?	☐	☐
b. Lecture to the class using pamphlets, booklets, and flipcharts, distributed by family planning agencies?	☐	☐
c. Both of the above methods are proper.	☐	☐

4. After attending the class, what do you think about the methods used by the instructor: Check one or more.

	Yes	No
a. Too difficult for me because the instructor used too many unknown words.	☐	☐
b. Interesting because the instructor gave examples during the presentations.	☐	☐
c. I knew the subject already and therefore did not feel interested.	☐	☐
d. Too many examples not pertinent to the subject were used.	☐	☐

5. What do you think about the methodology used by the instructor?

	Yes	No
a. The instructor should give more examples	☐	☐
b. Generally, it was good	☐	☐
c. I was inattentive because the method used by the instructor was complicated	☐	☐
d. Interesting because it is a new subject for me	☐	☐
e. Others (specify)		

While finalizing the instrument to evaluate the teacher's competence in teaching population education to out-of-school youth and adults, it would also be advisable to review the check-lists for evaluating curriculum materials and teaching-learning processes given in chapter three of this Manual.

Evaluation of population education as integrated into agricultural extension work

Three of the questions which the instructor might ask himself in this connection are:

1. Into which lessons in the agricultural extension course can population education concepts be meaningfully integrated? What are the lessons? What are the concepts?
2. Are there any significant population education concepts that cannot meaningfully be integrated into agricultural extension?
3. In what ways may activities be organized outside the agricultural extension programme to introduce learners to population education that cannot be meaningfully integrated into agricultural extension?

In so far as the instructor identifies the content in response to the first question, the methodology of evaluating the teaching process would more or less be on the lines indicated in the preceding section.

In regard to the evaluation of learning outcomes, apart from the adaptation of the test items given in chapter four, such items as the following may be used:

Instrument IVA

Evaluation of learning outcomes in population oriented agricultural extension programmes

Instructions: Match each statement in set A with an appropriate statement in set B.

Set A	Set B
____ 1. If a pomelo tree has too many fruits, you can be sure that its fruits would be small.	a. An IUD prevents the male sperm from entering the uterus.
____ 2. A fence stops an animal from entering into a garden.	b. The contraceptive pill prevents women from conceiving.
____ 3. Ipil-ipil seed given to a mother hen prevents her from laying eggs.	c. Too frequent pregnancies may result in not so healthy children.

Instrument IVB

Evaluation of learning outcomes in a more generalized out-of-school context

The following instrument has been designed to enable instructors or fieldworkers in out-of-school programmes to assess learning outcomes. The instructor has to fill it individually for each learner. Where there has been a group leader in charge of a group, it may be filled by the group leader. The responses should be recorded on a five-point scale shown against each item.

Not at all — Very much

1. His/her self-confidence as a learner is enhanced.

   1 2 3 4 5

2. His/her effectiveness as a learner is increased.

   1 2 3 4 5

3. He/she increasingly sees himself/herself as an agent of change (For example, influences others to practise new farming methods or family planning methods).

   1 2 3 4 5

4. He/she has increased capacity for contributing to the solution of the problems of his country.

   1 2 3 4 5

5. He/she is increasingly committed to continuing self-education.

   1 2 3 4 5

6. He/she possesses skills necessary for continuing functional literacy after the course.

   1 2 3 4 5

7. He/she has developed occupational, skills such as poultry-raising, farming, handicraft, and carpentry.

   1 2 3 4 5

	Not at all			Very much
8. He has increased his capacity to work out solutions to problems about family relationships, inter-personal relationships, family size, spacing, age at marriage, occupation, education.	1 2	3	4 5	

9. He has developed ability to make responsible decisions about population matters.

1 2 3 4 5

10. He has increased his capacity to plan and decide proper age for marriage and size of family.

1 2 3 4 5

11. He has increased his capacity to identify significant problems which impede his development.

1 2 3 4 5

12. He has increased his capacity to judge between his expectations and his capability to fulfil them.

1 2 3 4 5

13. He is better able to anticipate possible consequences of his actions with regard to population factors.

1 2 3 4 5

Monitoring and feedback

A regular monitoring and feedback would not only require a personal data sheet for each learner but would also require a daily, weekly and monthly reporting system. A sample of a personal data sheet and general proforma which can meet the record keeping requirements might take the following forms:

Instrument VA

Personal data sheet

Name of group: ....
Address: ....
Total membership: ....

(1)	(2)	(3)	(4)	(5)	(6)	(7) BEFORE TRAINING			(8) AFTER TRAINING				
Name of members	Age	Sex	Religion	Highest grade completed	Reason for not continuing studies	Desired age of marriage	Desired number of children	Occupational skills, if any	Dropped	Completed	Desired age of marriage	Desired number of children	Skills learned

Instrument VB

Daily/weekly/monthly activities report form

a) Name of the village: ______________________________

b) Location/address: ______________________________

c) Date and time of arrival: ______________________________

d) Date and time of departure: ______________________________

e) Purpose of the visit: ______________________________

f) Description of learner's group: ______________________________

g) Size of group: ______________________________

h) Topic discussed: ______________________________

i) Methods and materials used: ______________________________

j) Facilities/services provided: ______________________________

k) Resource person employed, if any: ______________________________

Activities:

Follow-up action:

....

Signature of the field worker

Conclusion

A wide variety of evaluation instruments for out-of-school population education programmes has been presented in this chapter. The instruments are not meant to be used as they are. They are prototype evaluation instruments that may be modified for use in evaluating different aspects of various forms of out-of-school population education projects/activities.

Chapter Seven

A CURSORY LOOK AT EVALUATIVE RESEARCH

Evaluation with reference to an educational programme has been defined as the collection and use of information to make decisions about the programme. Some of the information that is needed can be subjective and there are no objective ways of obtaining it. Where, however, it is possible to obtain information either subjectively or objectively, the preference should be for the latter. Whether information is obtained subjectively or objectively, there arises the need to evaluate it, or to make a judgement of worth. This judgement has often to be intuitive, as there is no evidence on which to base it. In a few cases, there may be evidence to support the judgement of worth, and when this is so decisions taken in accordance with it would command great confidence.

Tasks of evaluative research

Evaluative research has two basic tasks. The first is that of exploring the possibilities for collecting information for evaluative purposes on an objective basis whenever this can be done. The second is that of exploring the possibilities for providing an evidential basis for judgements of worth of certain procedures or the relative worth of alternative procedures.

Chapters three, four, five and six of this Manual contain several check-lists and sample test items that may prove useful in the preparation of instruments for providing some measure of objectivity to data gathering in regard to the processes involved in the teaching and learning of population education, and the outcomes of the learning process. They are intended to be suggestive for evaluative research activities to be undertaken by population education project leaders in the countries which have programmes or intend to launch programmes. It is hoped that serious attention would be paid to the development of data gathering instruments through the compilation of test items, their qualitative and quantitative analysis, and the assembling of valid and reliable tests, questionnaires and check-lists so that whenever an objective measure for gathering data exists it would be used either in conjunction with or in place of subjective measures.

The second task for evaluative research is that of providing, when possible, an evidential basis for judgements of worth of certain procedures or the relative worth of alternative procedures. To take a specific example, let us assume that the population education programme concerned was one of three months' duration, that it was designed to assist learners to acquire a certain content, and that at the end of the three months, a very high percentage of the learners showed good achievement as revealed by their responses to a test of the multiple choice type lending itself to complete objectivity in marking. Does this evidence suffice to make a decision that the programme should continue for similar groups of learners in order to assist them to achieve the same objectives as the previous group? A close examination of the issue shows that although the measuring instrument used was of an objective type, this fact does not invest the decision with objectivity. If a decision is made to continue the programme on the basis of the evaluation described above, there is no gainsaying that the decision is a subjective one as it rests on the untested assumption that it was the programme which was responsible for assisting the learners to reach their levels of achievement.

Reduction of subjectivity through test

The subjectivity of the decision could be reduced to some extent by collecting more evidence. If, for example, a test was administered at the end of each month and each successive administration showed a gain in achievement, it might lead to more confidence in the assumption that the programme is in fact making an impact. While the decision to continue the programme would yet remain subjective, the assumption underlying it would warrant more confidence than before, though it has not been put to the test.

Another way of reducing the subjectivity of the decision is to administer a test before the commencement of the three months' programme and again at the end of the programme. An improvement in performance that is statistically significant would justify to a very great extent the assumption that the improvement is caused by the programme. The possible operation of confounding factors, such as the influence of other programmes over the three months' period or the growth in maturity of the learners, has to be borne in mind, and this is the reason why improvement in achievement cannot be attributed to the programme with perfect confidence.

It is also possible to combine the designs suggested in the two preceding paragraphs. There would be a test before the commencement of the programme, and tests at the end of each month. It is not possible to exclude, however, the operation of the confounding factors mentioned above, and less than perfect confidence is warranted in the assumption that improvement in achievement has come through the programme.

Experimental research

Designs such as the above are not experimental designs, and have limited usefulness. A fully experimental design is one in which a control group is also used. The selection of a control group is, however, a difficult undertaking. Ideally, the population from which the control and experimental groups have to be selected has to be identified, and the subjects assigned to the two groups in such a way that every member of the population has an equal chance of being selected and assigned to a group. In other words, a probability sample has to be drawn using random sampling methods. This is seldom possible for educational experiments. Where the experiment is one involving an in-school sample, a class rather than an individual may be used as the sampling unit, but even so the selection of classes using probability sampling is not easy. Moreover, schools seldom show homogeneous characteristics, and there are qualitative differences which can confound the sampling process if as small a sample as two classes has to be drawn from schools in a large area. It is possible to overcome this by stratified sampling. The interested reader is referred to the book by E.F. Lindquist listed in the bibliography.

To revert to the question of design, it is one in which there are a control group and an experimental group. The same pre-test is administered to both groups. It is assumed for the sake of simplicity that roughly the same level of achievement is shown by each group. If this is not the case, the statistical treatment of the data becomes complicated and involves certain assumptions regarding the cause of the difference. The experimental group is then exposed to the educational programme, and on the conclusion of the programme the same post-test is administered to both the control and the experimental groups. If the experimental group shows a statistically significant gain, while the control group does not, then it may be concluded with very nearly absolute confidence that the programme has been responsible for the gains. While the confounding factors mentioned earlier have been eliminated, there yet remains one, namely the Hawthorne effect, which means that by virtue of the consciousness of being the subjects of an experimental programme, persons involved can show gains (resulting from higher motivation) not directly attributable to programme treatment.

If probability sampling is out of the question, matching on a pre-test may be used to constitute the control and the experimental groups. In this case, a group of potential participants somewhat exceeding twice the number to be exposed to the programme should be selected, and a pre-test administered. Those with identical pre-test scores would be paired, and one member of each pair would be assigned randomly to the control group and the other to the experimental group. The experimental group will be exposed to the educational programme. Thereafter, the same post-test would be administered to the control and the experimental groups. If the performance of the experimental group is significantly superior to that of the control group, it may be concluded with very nearly perfect confidence (but for the Hawthorne effect) that the programme has been responsible for the gains.

The cases so far considered in this chapter all involve an evaluation of the impact of a single programme, with no regard being paid to methodology. The most challenging task for evaluation is that of assessing one method of instruction *vis-a-vis* another. The designs in the two preceding paragraphs lend themselves to such an evaluation. Instead of having a control group and an experimental group, both groups would be experimental groups. The Hawthorne effect gets eliminated in this case. It is also possible to use a third group that would serve as a control group.

It is important to recognize that the use of pre-tests could itself be a confounding factor. Specially when they are of an attitudinal nature, there might be a tendency in answering post-tests to give responses either consistent with the previous ones or to vary them purposely to show change. Moreover, the pre-test could highlight the issues involved and make the testees sensitive to public discussions of them with the result that changes are not necessarily caused by the instructional programme. The following experimental design, known as the Solomon four-group design, has been suggested to take account of this. T_{pr} stands for pre-test, X stands for the instructional programme, and T_{po} for the post-test.

Group 1	T_{pr}	X	T_{po}
Group 2	-	X	T_{po}
Group 3	T_{pr}	-	T_{po}
Group 4	-	-	T_{po}

Conclusion

It is not proposed to deal in this Manual with the statistical analysis of the data from evaluative research. The reader is referred to the publications listed in the bibliography. The purpose of this chapter will have been realized if interest is stimulated in the kind of evaluative research indicated above.

Chapter Eight

THE MANAGEMENT OF EVALUATION

The concept of programme evaluation underlying this Manual is that evaluation should be a continuous process, commencing with the pre-programme stage and extending to the post-programme stage, opening up possibilities of evaluation not only immediately after the conclusion of the programme, but even several months or years later, as in the case of a longitudinal follow-up of the persons exposed to the programme. This concept of programme evaluation presents a radical departure from the commonly held view that evaluation is an activity that is carried out as a one-time effort on the completion of a programme.

The concept of evaluation as a continuing process has implications for programme staffing. It is necessary that one or two trained evaluators should be part of the programme team right from the beginning and that they should be actively involved in all the development activities of the programme. Their role is particularly important in connection with the specification of objectives, both for the programme as a whole and for the various instructional units of the programme. It often happens that when evaluators are brought late into a programme, they find fault with the way in which objectives have been specified and point out that it serves as a constraint on evaluation. They should also react to curriculum and instructional materials as they are being developed, and take responsibility for organizing and evaluating the results of field trials.

Responsibility of evaluation staff

The construction of evaluation instruments, both of an informal nature such as those prepared to assess the outcomes of a particular lesson or unit, and those of a more comprehensive nature such as those prepared to assess the outcomes of one or more semesters of study, should be a co-operative activity in which the evaluation staff, curriculum staff and classroom teachers participate. One major responsibility of the evaluation staff in this regard would be to suggest item types, and invite curriculum development personnel and teachers to write items they consider appropriate, as well as to suggest new item types. A second major responsibility of the evaluation staff would be to assemble groups of items in the form of tests and carry out the necessary statistical analyses. In this connection, it may be emphasized that using several different combinations of test items with small groups of learners would provide much more information than the use of a single test with a large group. Moreover, in the case of free response items which have a special relevance for assessing the outcomes of population education, administration to small samples would permit an in-depth analysis with great potential for curriculum and instructional materials development, and significance for teaching-learning processes.

Test item bank

Every major population education programme should compile an item bank with several hundred items which could be supplied to teachers and other programme personnel for selection and use from time to time, especially in end-of-semester and end-of-year examinations. Teachers often tend to use examination papers set by them in previous years with the result that they concentrate on old content to the neglect of newly introduced content.

Problems and issues in evaluating population education programmes

A special problem arises when population content is integrated into several subject areas, as is the case with most existing programmes. The content has low visibility to the learner, as it tends to be fragmented. Without prejudice to the use of integration as the method for introducing population content, it should be possible, at least on two or three occasions during a student's school career to require the student to sit an internal school examination in population education, in those countries which consider the programme to be very important. In fact, in the case of countries which conduct nationwide examinations for selection, certification or other purposes, the inclusion of a few items in population education will provide a great impetus to this new field of study.

Though the evaluation of learning outcomes is a major task for the evaluator, it must not be forgotten that it is also his responsibility to attend to the evaluation aspects of other programme components. The gaps between programme intentions and programme operations needs close attention. For example, the logistics involved in the distribution of instructional materials and teaching guides needs a close look in order to ensure that they reach schools in good time. Another problem is to ensure that when a school teaches population education in a certain grade, it has the teachers for the various subjects concerned; if it lacks teachers for some of them, the principle of integration within the grade would be affected. Likewise, integration between grades would be affected if, for example, population education is taught in grades 6 and 8, but not in grade 7 for want of competent teachers, whereas the curriculum envisages inclusion in all three grades.

When a population education programme provides in its plan for the use of local consultants for review and evaluation, a good example of this being the provision to refer curriculum materials to consultants for their views, care must be taken to ensure that this review, and in a sense evaluatory exercise, is carried out as objectively as possible. Any tendency on the part of programme staff to select their personal friends as reviewers should be discouraged. It is generally advisable to seek reviewers from both inside and outside the organization responsible for the programme. For example, if it is the Ministry of Education that is responsible for the programme, a few reviewers should preferably be from outside the Ministry, and if it is a University which is responsible for the programme, a few reviewers should be from outside the University. The experience of programmes is that frank reviews which contribute greatly to programme improvement come when there is a relatively high degree of detachment on the part of the reviewer, and this is not sometimes the case when one is evaluating a product put out by a friend and personal relationships are important. The use of a non-national to team up with a couple of nationals to carry out a serious evaluation once in three or four years has its advantages in that it may broaden the perspective of the review, and lead to significant programme improvements.

While the major focus in evaluation would be on programme objectives and operations, evaluators should be sensitive to unintended effects of programmes. For example, the view has been expressed in some quarters that overmuch emphasis on the small family norm could lead to disturbed interpersonal relationships in the home. This is an issue to which curriculum writers, teachers and evaluators should be sensitive. A different kind of issue is the effect that external funding, on a fairly liberal scale for population education, may have on other educational programmes.

Where a comprehensive evaluation, as distinct from continuing evaluation, is undertaken in the form of a serious exercise, the evaluation report should be a major input into programme improvement, unless, of course, the report recommends the discontinuation of the programme. The report should be more analytical than descriptive, and should come up with concrete suggestions for programme improvement in those areas where possibilities of improvement exist.

Check-list for programme directors

The check-list given below is intended to be used by programme directors from time to time to monitor the progress of their programmes. Where the response is one which has an asterisk * marked against it, it is suggested that the programme director should give serious thought to remedial action.

Programme goals

1. Do programme goals accord with national development goals?	Yes	No*

2.	Do programme goals accord with general educational goals?		Yes	No*
3.	Do programme goals meet with community acceptance?		Yes	No*
4.	Are programme goals feasible?		Yes	No*

Programme planning

5.	Has the programme been planned to achieve stated goals?		Yes	No*
6.	Has the programme plan been developed in sufficient detail?		Yes	No*
7.	Are programme targets being met?		Yes	No*
8.	In the light of experience up to now, are changes in plans needed?		Yes*	No

Programme financing

9.	Are finances coming as anticipated?		Yes	No*
10.	Have financial resources been correctly estimated?		Yes	No*
11.	Is the flow of expenditure as planned, or is there over or under expenditure?	as planned	over*	under*

Programme staffing

12.	Was the estimate of required staff right?		Yes	No*
13.	Have all staff positions been filled?		Yes	No*
14.	Is the quality of the staff right?		Yes	No*
15.	Is there a staff development programme?		Yes	No*
16.	Is the staff development programme proceeding as planned?		Yes	No*

Programme management

17.	Have effective arrangements been made for co-ordination with other educational programmes?	Yes	No*
18.	Have effective arrangements been made for co-ordination within your programme?	Yes	No*
19.	Have effective arrangements been made for supervision?	Yes	No*

Curriculum materials

20.	Was a baseline survey carried out to assess learning needs?	Yes	No
21.	Were there consultations to assess learning needs?	Yes	No
22.	Are objectives of learning units specified as far as possible in behavioural terms?	Yes	No*
23.	Have drafts of learning-teaching materials been subjected to review by consultants?	Yes	No*
24.	Have drafts of learning-teaching materials been field-tested?	Yes	No*
25.	Is there provision for feedback from teachers using learning-teaching materials?	Yes	No*
26.	What is the general opinion of teachers about the curriculum materials?	Good	Bad*
27.	Is there provision for revision of the curriculum materials in the light of feedbacks?	Yes	No*

Training of teachers

28.	Is there provision for the in-service training of teachers?	Yes	No*
29.	Is the in-service training programme proceeding as planned?	Yes	No*

30. Are any changes in the in-service training programme being envisaged?	Yes*	No
31. Is there provision for the pre-service training of teachers?	Yes	No*
32. Is the pre-service training programme proceeding as planned?	Yes	No*

Learning outcomes

33. Are learning outcomes in the cognitive domain periodically assessed?	Yes	No*
34. Are learning outcomes in the affective domain periodically assessed?	Yes	No*

Evaluative research

35. Is any research being undertaken on the effectiveness of alternative methodologies?	Yes	No*
36. Is any longitudinal research planned?	Yes	No*

Overall assessment

37. What is your overall assessment of the programme?	Satisfactory	Unsatisfactory*

Conclusion

Given above are a few guide questions on programme management that might be used in charting the direction of a population education programme and in identifying areas that need improvement or even pin-pointing mistakes that need to be rectified. The check-list is far from exhaustive, nor is claim being made that all items are appropriate in all social settings.

Appendix
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SUBJECT INDEX

Attitude measurement, 63-64, 109-110

Attitude scale, 109. *See also* Likert scale and KAP test

Baseline survey instruments, 102-107

Behavioural change, 12

Bloom's taxonomy of educational objectives, 41, 43

Cognitive outcomes. *See* learning outcomes

Control group, 133-135

Criterion-referenced evaluation, 58

Educational evaluation
  definition and nature of, 1-2

Educational objectives, taxonomy of, 41, 43
  See also Bloom's taxonomy

Evaluation of
  curriculum materials, 13, 17-42
  group processes, 117-119
  in-school population education programmes, 2-3, 12, 17-73
  learning outcomes, 43-73, 127-131
  out-of-school population education programmes, 3-5, 13, 15, 100-131
  programme management, 16, 138-141
  teaching-learning processes, 13-14, 23-42
  teacher training, 15
  training programmes in population education, 74-100

Evaluation instruments for
  affective outcomes, 63-72
  curriculum materials, 18-23
  effectiveness of group approaches, 117-119
  individual and group progress, 59-61
  inquiry process, 25-28, 124-125
  instructor/teacher competence, 120-126
  national training programme, 85-100
  programme management, 138-141
  regional training course, 78-84
  valuing process, 30-32

Evaluative research
  task of, 132-133

Experimental group, 134-135

Experimental research, 133-135

Feedback questionnaire, sample of, 88-90

Formative evaluation, 9-16, 75

Group interaction, 117-119

Group progress report, 58-61. *See also* individual and group progress report

Group work techniques, 101

Hawthorne effect, 134-135

Individual and group progress report
  checklist for, 59-60
  data gathering regarding, 58-60
  data recording regarding, 58-60

In-programme evaluation. *See* formative evaluation

Inquiry process
  checklist for, 25-28, 124-125
  sample questions/test items, 55-57

Instructional process
  gathering data about, 32-42

Interaction analysis
  classroom verbal behaviour. *See* Flanders's Interaction Analysis Categories
  Flanders', 38-40
  Hansen and Hearn's, 32-38

Interviews, 16

In-training evaluation, 75

KAP test, 85

Learner-learner interaction evaluation, 14, 117-118

Learner self-rating instruments, 117-119

Learning outcomes
  affective domain, 43, 61-73
  agricultural extension programmes, 126
  cognitive domain, 43-61

Likert scale, 63-64

Management of evaluation, 136-141

Monitoring and feedback, 128-130

Non-formal education programmes, 3. *See also* out-of-school programmes

Norm-referenced evaluation, 58

Objective of educational programme, 1

Out-of-school programmes
  difficulties in evaluating, 3-5
  evaluation of learning outcomes, 126-130

Personal data sheet, 129-130

Population concepts
  causes of population change, 44-45, 51
  consequences of population change, 49, 53-54
  demographic measures, 59-61
  interrelationship of population change and quality of life, 44-45
  population change and structure, 44-45, 50, 52

151

Population education
  acceptability to the community, 8
  feasibility of the programme, 9
  integrated in other subjects and programmes, 3, 12, 101
  need for, 7
  separate subject, 3, 12

Post-programme evaluation. *See* summative evaluation

Post-training evaluation, 75, 85

Pre-training evaluation, 75, 85

Problems and issues in evaluating population education programmes, 137-138

Problem solving, 14, 67, 69-71

Process evaluation. *See* in-training evaluation

Product evaluation. *See* post-training evaluation

Programme evaluation, 7-16, 136

Progress report
  as feedback mechanism, 102

Psychomotor domain, 43

Questionnaire on population education, 107-108

Questions
  pre-test and post-test, 45-54, 77-100
  types of, 40-41
  samples to measure higher level cognitive skills, 45-55

Random sampling method, 134

Reading and writing test, 111-112

Responsibility of evaluation staff, 136-137

Sex education, 8

Subjectivity of decision, 132-133

Summative evaluation, concept of, 16
  See also post-training evaluation

Table of specifications, 45

Taxonomies of educational objectives, 41, 43

Teacher training evaluation, 15

Teaching-learning process evaluation, 13-14, 23-42

Test-item bank, 137

Value clarification, 14, 29-32, 67-71

Visual perception test, 113-116

NAME INDEX

Banks, James, 54

Beyer, Barry K., 24

Bloom, Benjamin, 43, 44, 61

Brown, Jerry, 53

Cronbach, L.J., 2

Flanders, N.A., 38

Hansen, John H., 32

Harmin, Merrill, 29, 30

Hearn, Arthur, 32

Kirschenbaum, Howard, 30

Krathwohl, D.R., 61, 62

Likert, R.R., 63

Lindquist, E.F., 134

Masia, B.B., 61

Paik, Yong-Duck, 47, 55

Raths, Louis, 29

Sanders, Norris, 41

Simon, Sidney, 30